15 Cents

The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, FEBRUARY 7, 1929 $6.00 a Year

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Service

The main office and plant of Hughes Tool Company, located at Houston, Texas, covers an area of seven and one-half acres of floor space. Here the latest machinery and skilled man power are combined in the manufacture of Hughes Products on a scale in keeping with the demands of the Industry.

Service plants are maintained at Los Angeles, California, and Oklahoma City, Oklahoma, where Hughes Rock Bits and Cones are quickly and properly rebuilt and repaired.

An Export Office is maintained in the Woolworth Building, New York City, to better serve the demand for Hughes Tools in the Foreign fields.

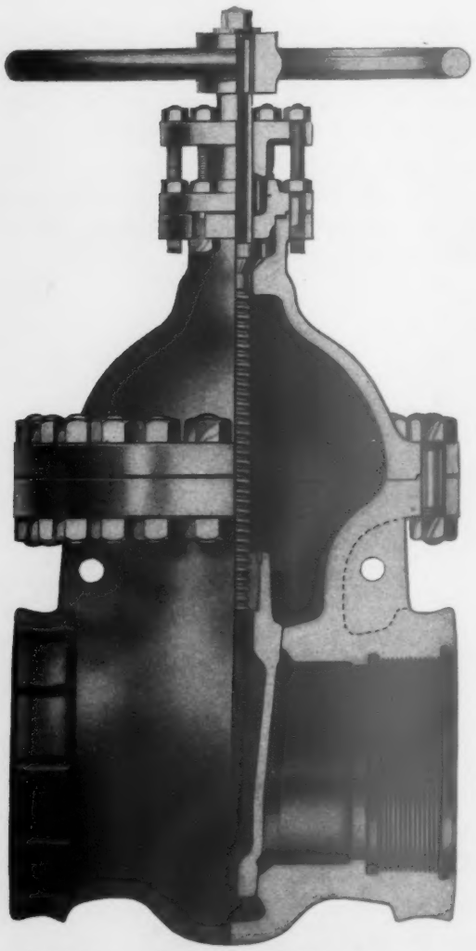
Hughes Rock Bits, Cones and Tool Joints are stocked by Supply Stores everywhere. This service is further augmented by Hughes Tool Company representatives who keep in close contact with field conditions and requirements.

The Service back of Hughes Products is world wide in scope and has played an important part in the growth and development of the Petroleum Industry.

rough Performance

Advertisers' Index on Page 25 Table of Contents on Page 26

Chapman Valves for tough jobs



This is the CHAPMAN Drilling Valve of Chrome Nickel Steel. Before leaving our plant it must pass a 24-hour kerosene test at 2,500 lbs. Made in all sizes in both flange and screw end.

Where the worst possible conditions prevail, engineers turn to CHAPMAN Valves for dependable service. Whether it be on the drilling job or in the refinery, under terrific pressures, extremely high temperatures, or both, oil men know that valves of CHAPMAN Chrome Nickel Steel have all the stamina that science and quality workmanship can produce.

Stronger than forged steel, CHAPMAN Chrome Nickel Steel is an electric furnace product, developed in the CHAPMAN laboratories and tested in the field under every possible service condition.

You can get CHAPMAN Drilling Valves, Refinery Valves, and Pipe Line Valves on immediate shipment from our distributor in your territory.

The Chapman Valve Manufacturing Co.
Indian Orchard, Mass.

Branch Offices

Houston	Philadelphia	Los Angeles
Atlanta	Chicago	New York
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Pittsburgh	Syracuse	Boston

Distributors

E. L. Wilson Hardware Co., Beaumont and Houston
Wagner Supply Co., Fort Worth

WALWORTH

Sets the Standard for Oil Country Valve Equipment

For all pressures and all conditions encountered in the oil country, Walworth's Iron Body Double Disc gate valves set the standard for equipment. The principal jobbers have recognized this by putting large stocks of Walworth valves into their warehouses. Here are some of the leaders of the Walworth line, available in either non-rising stem or outside screw and yoke design—

700 lbs. TEST

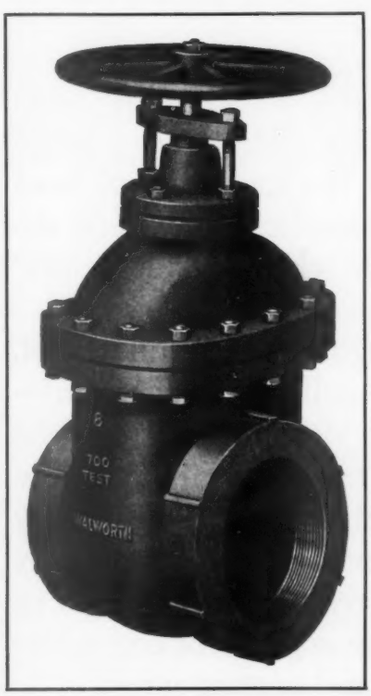
Walworth 700 lb. Double Disc Steel Iron, Bronze Mounted and Bronze Stem, the accepted equipment for the difficult spots around the well in pump houses and along the pipe line right of way. Recommended for 400 lbs. pressure cold oil, water or gas.

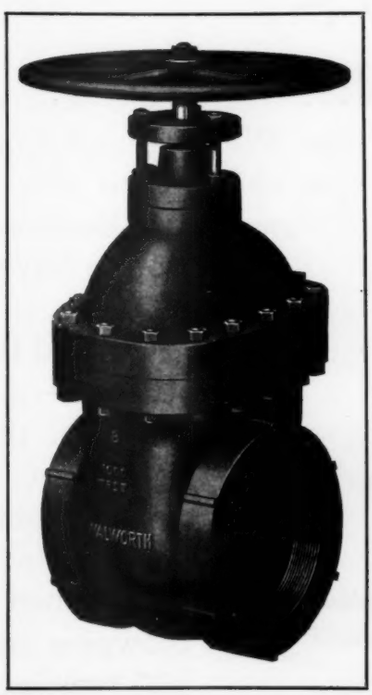
1,000 lbs. TEST

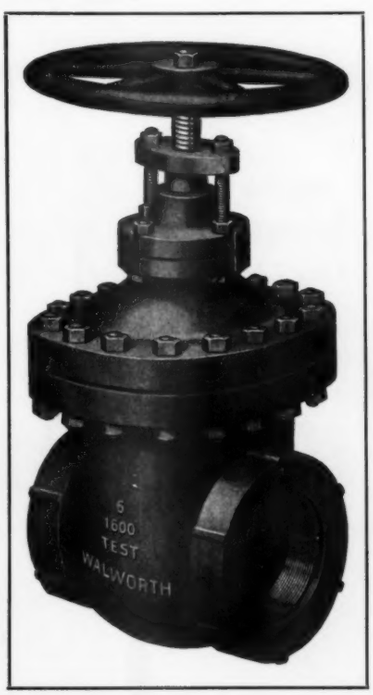
Walworth 1,000 lb. Double Disc Steel Iron Gate Valve, Bronze Mounted and Bronze Stem, a never failing valve for heavy duty. Recommended for 500 lbs. working pressure cold oil, water or gas.

1,600 lbs. TEST

Walworth 1,600 lb. Double Disc Steel Iron Gate Valve, Bronze Mounted and Bronze Stem, for use on the high pressure lines. Recommended for cold oil, water and gas service at 800 lbs. working pressure.







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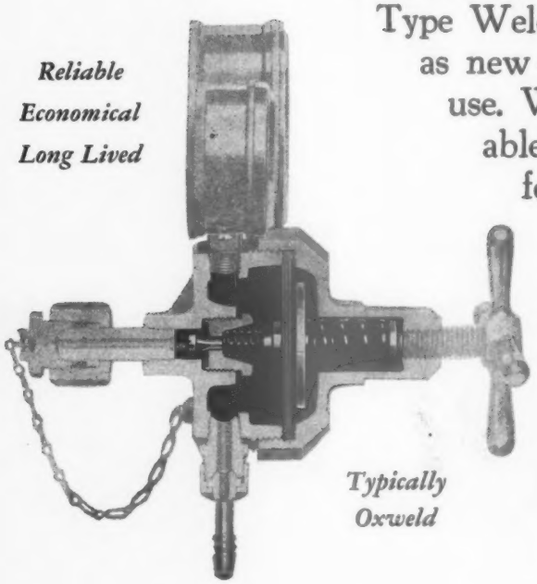
The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 per year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879

Will $3.60 buy a new Oxygen Regulator?

No! *But* $3.60 will make an Oxweld Stem Type Welding and Cutting Regulator as good as new — even after it has had years of hard use. Why? Because simplicity of design enables you to buy the whole "inside works" for $3.60!

Reliable
Economical
Long Lived



Typically Oxweld

Oxweld Regulators are built to last. Rugged — no delicate mechanism — plenty of the right material in the right place. Design permits gas flow in any desired quantity. Uniformly dependable for accurate and steady reduction of pressure from cylinder to blowpipe on every type of oxy-acetylene welding and cutting work.

OXWELD

WELDING AND CUTTING APPARATUS AND SUPPLIES

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Unit of Union Carbide and Carbon Corporation

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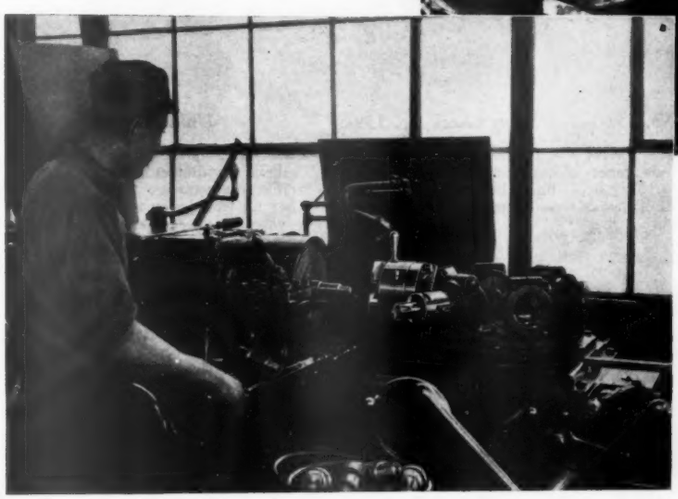
DOLLARS DEPEND ON THREADS

Core drills, casing shoes, rotary drill couplings, sucker rods, casing, tubing and drill pipe—a thousand and one other parts—threaded to the highest degree of accuracy.



The successful manufacturer of Oil Field equipment must produce highly finished, accurately cut threads. The majority use Land-Matic Heads and Victor Taps.

To provide for easy replacement of worn parts and to permit of a breaking down into smaller units for easy transportation, a surprising amount of Oil Field Equipment is threaded.

Threads must be strong to withstand the heavy strain placed on them. They must be accurate to insure a proper fit and interchangeability. They must be highly finished to enable an easy engagement and to permit of repeated use.

A majority of the successful manufacturers of Oil Field equipment use LAND-MATIC heads, VICTOR Taps, or other Landis threading tools to produce threads to these requirements.

The high production and low maintenance cost of Landis threading equipment make possible the manufacture of threaded parts at a greater profit.

Catalogue No. 30—Landis Threading Die Heads and Victor Taps.
Catalogue No. 31—Landis Pipe Threading Machinery.
Catalogue No. 32—Landis Threading Machinery.

LANDIS TRADE MARK

LANDIS MACHINE CO., Inc., WAYNESBORO, PENNA., U. S. A.

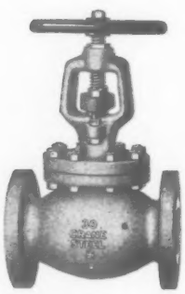
Detroit Offices: 5928 Second Blvd.

REPRESENTED IN THE DOMESTIC OIL FIELDS BY: Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; D. S. Mair Machinery Co., Houston, Tex.; Woodward, Wight & Co., New Orleans, La.; Herberts Machinery & Supply Co., Los Angeles; Herberts Moore Machinery Co., San Francisco, Calif.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

Dependable equipment for the cracking stills

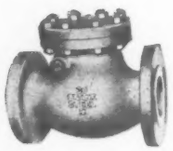
Special Globe Valve, Series 30

Extended bonnet with special stuffing box construction to avoid decomposition of packing usually caused by high temperatures. Made to order, of cast steel. Write for particulars.



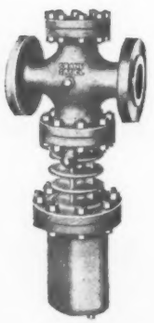
Globe Valve No. 151

Cast steel flanged valve. Forged steel glands generously proportioned. May be repacked while wide open and under pressure.



Swing Check No. 159-S

Cast steel, steel trimmings. Recommended for use in hot oil lines. For pressures to 275 lbs. where temperatures reach 900° Fahrenheit.



Unloading Valve

Cast steel. Spring-loaded safety device to relieve any dangerous excess pressure in refinery apparatus. Can be used where hot oil would damage springs of relief valve. To order. Write for information.

Flanged Tee

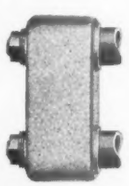
Cast steel flanged fittings and flanges are supplied in a complete line for use with hot oil at pressures to 600 lbs. and temperatures to 900° Fahrenheit.

Elbow No. 760-D

One of a group of cast steel fittings. Long thread chambers. Recommended for use with working pressures to 800 lbs. See Booklet 212, pages 50 and 51.

Return Bend

Flanged return bends of cast steel are recommended for use in condenser boxes of cracking stills, where vapors are condensed under high pressures. See Booklet 212.

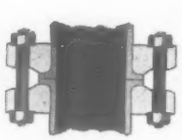


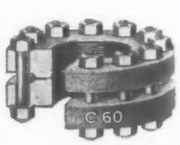
Double Outlet Return Bend

Double back outlet cast steel return bend. Special cleanout plugs for use on tube stills to facilitate cleaning out the coke, and reduce number of bolts on each fitting.

Crane-lap Flanged Joint

Recommended for use with oil of high temperatures, especially where drawn tubing instead of pipe is used. Drilled to any flange template. See Catalogue 51, page 465.





Flanged Union No. 830-D

Steel, with ground joint. Will withstand severe strains in piping. For hot oil working pressures to 600 lbs. and temperatures to 750° Fahrenheit. Ground joints have proved adaptability to all classes of piping service. See Booklet 212, pages 62 and 63.

Learn more about these valves and fittings backed by 74 YEARS OF EXPERIENCE. Write for Booklet No. 212, a catalogue covering all divisions of the oil industry in which you are interested.

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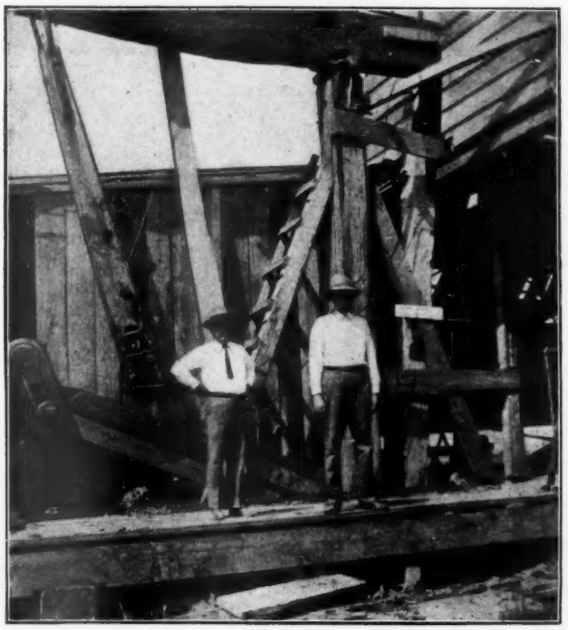


Highflex belt in service with Brown, Cady & Donnelly, Ft. Worth, Texas, still going strong after drilling 5 wells, total 18,285 ft. Sand storms frequent—grit has not affected Highflex. Federal belt clamps and Federal belt stretchers used. Detailed report of drilling:

Well No.	Ft. Drilled	Size of Tools at Start	Size of Tools at Finish
1	3930	20"	6 5/8"
2	3260	20"	8 1/4"
3	4000	20"	6 3/4"
4	3820	20"	5 3/8"
5	3275	20"	8"

The greatest advance in belt construction in 30 years

Goodrich Highflex Principle makes for notable service records in oil drilling and pumping

* * *

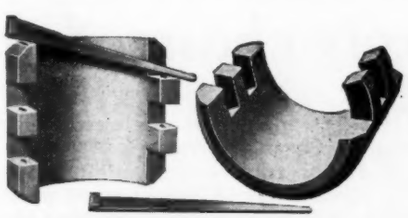
GOODRICH Highflex belting makes possible new economies in power transmission in drilling and pumping service. Because of their unique construction, Highflex belts have been called "the greatest advance in belt construction in 30 years."

The Highflex Principle does away entirely with the old-type, folded-edge construction. Highflex belts have no folds. The square edges eliminate the binding action at the edge of old-type belts. There is nothing to interfere with the uniform free action of ply upon ply.

As a result, Highflex belts have proved their stamina on extreme drives, such as oil well drilling rigs. One oil driller writes that with Highflex belts he gets "ten months against service of 2 to 8 months of previous belts."

Highflex belts eliminate bootlegging, resist injury from clamps, and deliver more power.

We will gladly send additional information. Write to The B. F. Goodrich Rubber Co., Akron, O., or the branch nearest you.



For Rotary Drillers

Goodrich Grip-Tite Casing Guards Save Power in Drilling

Friction between drill pipe and casing is eliminated. A bearing of rubber surrounding the drill pipe saves casing from friction and shocks, eliminates water leaks and saves 25 to 33% in power. Easy to install—no special tools. Cannot work loose. Send for additional data.

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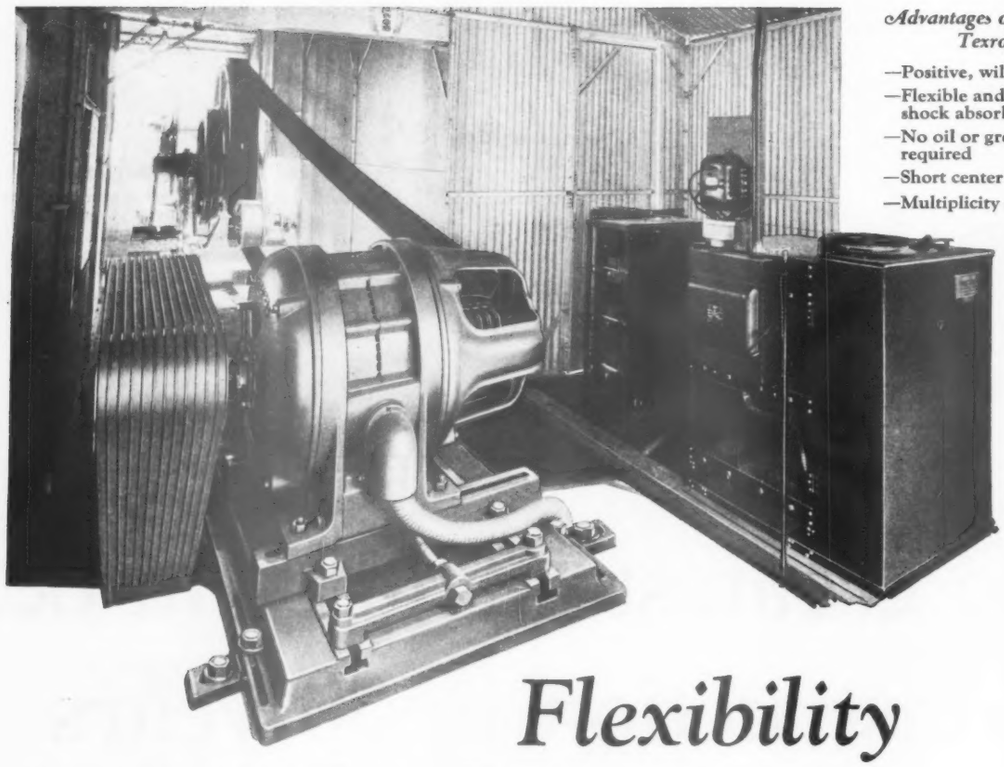

Advantages of Texrope Drives

—Positive, will not slip
—Flexible and shock absorbing
—No oil or grease required
—Short center operation
—Multiplicity of belts

Flexibility

for Cable Tool Drilling

—easily changed for producing

THIS Texrope driven single reduction unit is arranged for cable tool drilling. It is driven by a 25-65 h.p. Allis-Chalmers steel frame oil well motor regulated through control furnished by Allis-Chalmers. The control has 182 speed steps which gives very close speed adjustment. When this job is finished the drilling section of the control may be moved on to the next job and the motor and the reduction unit can be kept on the well for production.

Texropes provide a positive and flexible short center speed reducing drive requiring little care or adjustment. The countershaft is Timken equipped. Universal slide rails permit the use of any size or type of motor.

Allis-Chalmers motors are built with steel frames to give extra strength. The windings are dipped in insulating varnish and then baked three successive times to make them acid and moisture resisting. The combination Allis-Chalmers Motors and Texrope Drives provide dependable power that will stand up under your most severe conditions.

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ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WIS.

ALLIS-CHALMERS MOTORS *and* **TEXROPE DRIVES**

Products for the Oil Industry

Single and Double Reduction Units
Texrope Drives
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Transformers
Centrifugal Pumps
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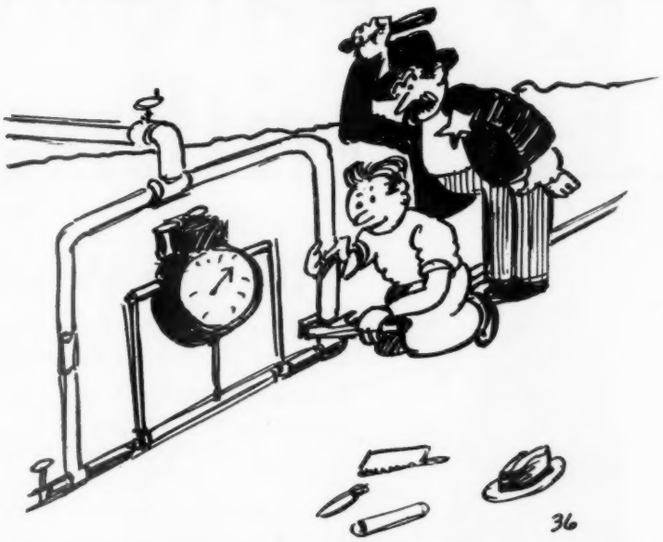

"You Can't Get Something for Nothing"

Neither can you burn gas efficiently without a good gas burner.

The METTLER ENTRAINED COMBUSTION GAS BURNERS will burn all of the combustibles in the gas quickly and completely, producing the highest furnace temperatures without the injurious oxidizing effect of the fire usually obtained with inferior burners.

Our large list of users will astonish you.

The Mettler Gas Burner is very simple but rugged in construction, consisting of three parts only. It is economical, durable, noiseless, does not backfire and is easy to install and operate.

Our literature is yours for the asking.

METTLER BURNERS HAVE NEVER BEEN SUCCESSFULLY IMITATED

We Welcome an Opportunity to Serve

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LEE B. METTLER CO.
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Please quote Prices on the equipment for the following:

No. of Boilers.....
H. P...... **Make**.....
No. of Stills.....
Size..... **Type**.....
Name.....
Company.....
City..... ***State***.....

B&B Patentsteel Drilling Lines

Till the Well Comes In

Spud 'er in. Then let a B & B Patentsteel Drilling Line see the job all the way through.

B & B Patentsteel Drilling Lines, because of their strength, are preferred in the deep hole districts where a fishing job can eat up a tremendous amount of money.

You'll make good time with "Patentsteel." The line is full of spring. And we have laid the line "soft" to keep the kinks away.

B & B Patentsteel and other good drilling lines can be made promptly to order to suit conditions in your particular field. Write for Catalog K-2 and name of nearest distributor of B & B Drilling Lines.

Broderick & Bascom Rope Co.
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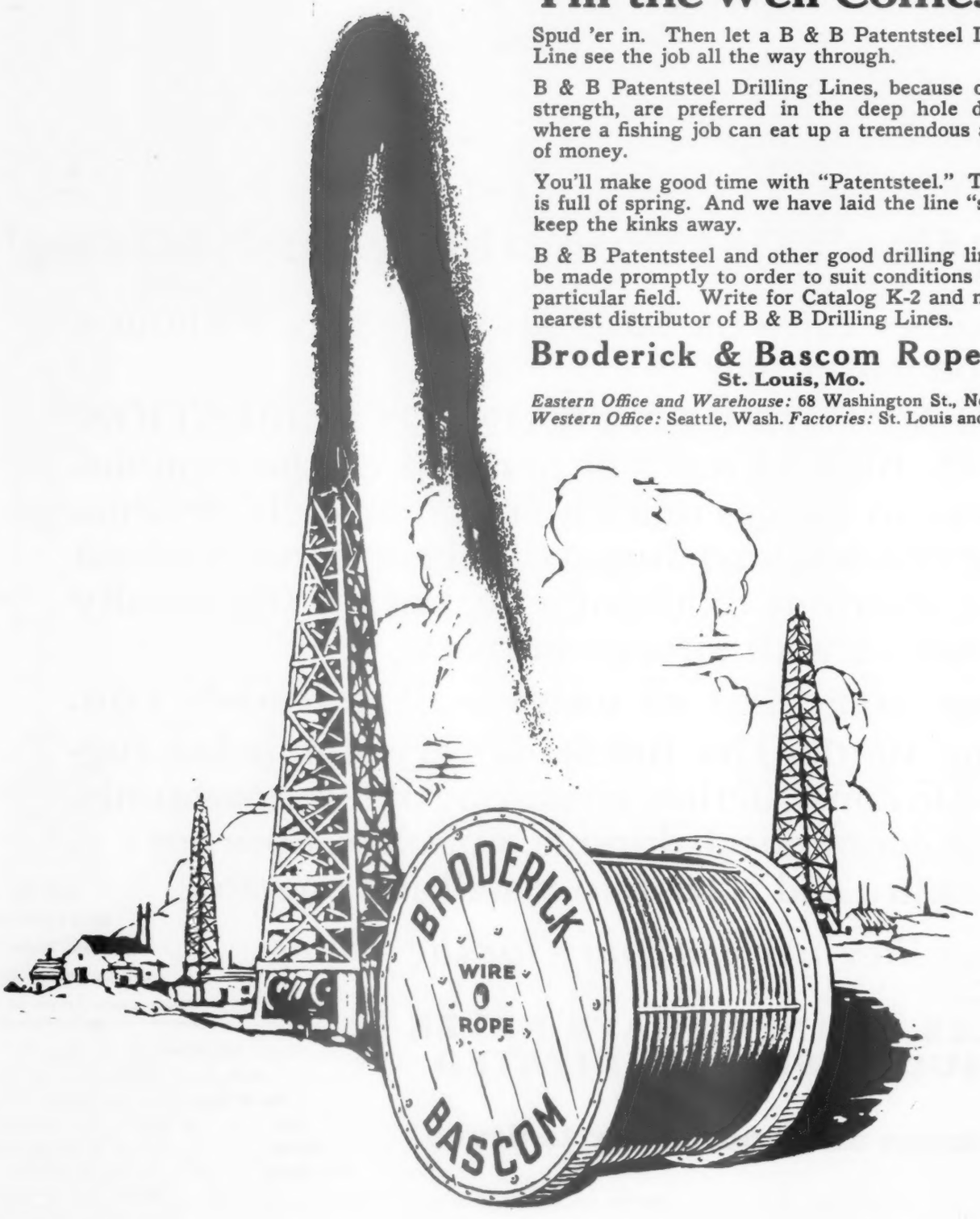

IN THE FIRST YEAR

From the very beginning SMITH*Welded* line pipe found its place–significantly –in the pipe line structure of companies that have had many, many years of experience in pipe line construction and operation.

SMITH*WELDED* **GAS LINE PIPE**

A. O. SMITH CORPORATION, *General Offices: Milwaukee, Wis.*
OIL AND GAS FIELD PRODUCTS DIVISION
District Offices at New York City, Pittsburgh, Tulsa, Houston, Los Angeles

Unified Responsibility

The Hope Company is the one organization serving the natural gas and oil industry which is ready and qualified to assume entire responsibility for a pipe line enterprise "from well to meter." It is not only ready, but it has repeatedly done so—to the satisfaction of all concerned.

More than this, the Company is ready also to undertake field surveys, market analyses, and aid in financing and organization—as it has repeatedly done in the past.

HOPE

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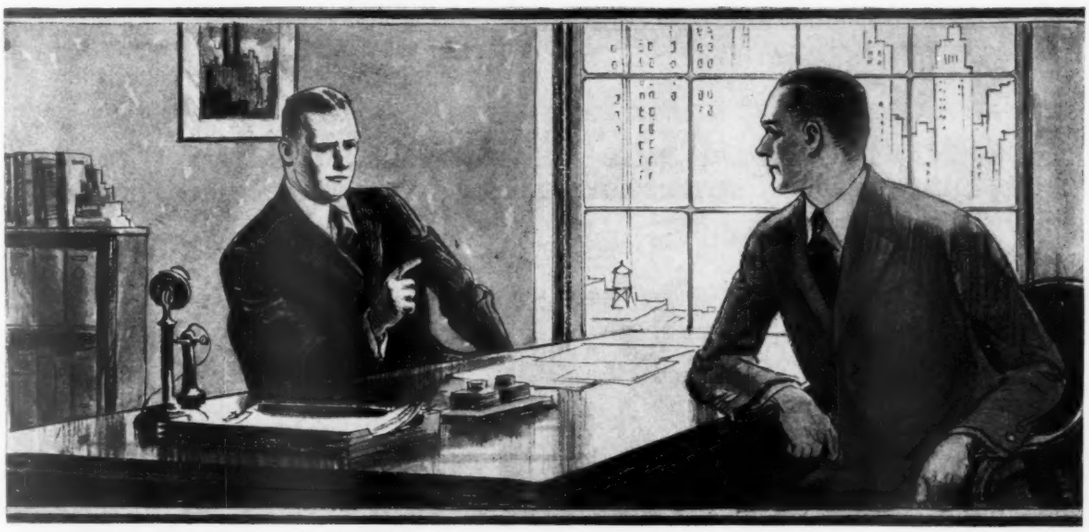

The most convincing proof of Success

THE careful buyer of today will often ask, "Are the users of this product giving you repeat orders?" It is an effective question for what better way is there of determining the success of any product.

A recent check shows that over eighty-five percent of Sterling Oil Section Sales are repeat orders. And it also shows that Sterling Oil Sections are installed in refineries ranging from the very largest down to the small twenty barrel per day plants.

From such evidence it seems logical to assume that Sterling Sections must be meeting the Refiner's most exacting demands and are in every way giving satisfactory performance.

The new Arco Metal is one of the reasons for the outstanding success of these sections. This improved metal is made from a special analysis ni-chrome alloy iron and cast by a process that insures a structure of unusual strength and resistance to the corrosive and erosive action of acids and alkalies.

If you do not have Sterling Sections in your plant let us furnish you the names of nearby users. The sections in operation offer the most convincing proof of their success.

Write today for complete engineering data.

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LOS ANGELES

"If Continental sells it-there is no better"

A Battery of Bessemer Type Ten Compressors in The Magnolia Petroleum Company's gasoline plant, Gray County, Pampa, Texas

Their dollar value is still a challenge!

FOR THIRTY YEARS Bessemers have been the standard of Oil Field Power Equipment value.

Advanced engineering keeps Bessemers ahead of the times and assures you an engine that will still be new even after it is old.

Precision workmanship and the highest grade of materials reduces servicing and increases running time—so that Bessemer's 99%+ performance is unsurpassed.

Oversize, overstrength construction means more years of low-maintenance operation—a feature that makes Bessemers cost a great deal less per operating hour.

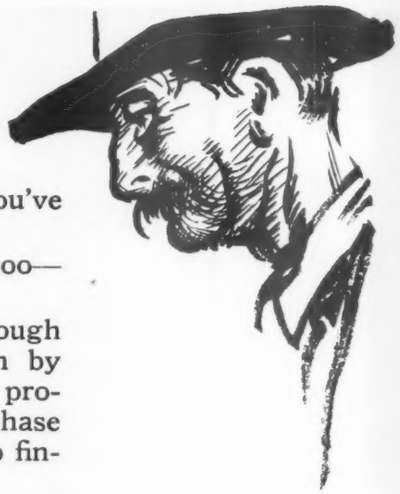
Compare a Bessemer with any similar equipment, judge them point by point, and you will clearly see *why* Bessemer value is still outstanding.

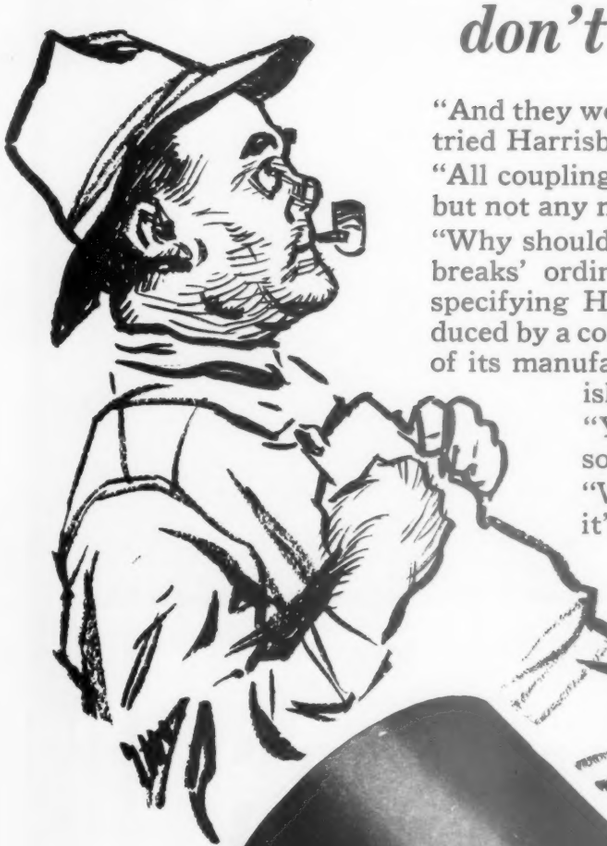
BESSEMER ENGINE COMPANY

52 York Street ∴ ∴ Grove City, Pa.

BESSEMER

"Ordinary Couplings don't suit me"





"And they won't suit you either—after you've tried Harrisburg Couplings awhile.

"All couplings used to look alike to me too—but not any more!

"Why should I take chances with the 'tough breaks' ordinary couplings bring when by specifying Harrisburg I get a coupling produced by a company that controls every phase of its manufacture from steel making to finishing?"

"You can't think of any good reason.

"Well, neither can I. That's why it's Harrisburg for mine!"

HARRISBURG PIPE & PIPE BENDING CO.

Harrisburg, Pa.

Fully Equipped with Our Own Open Hearth Furnaces, Rolling Mills and Forge Shops.

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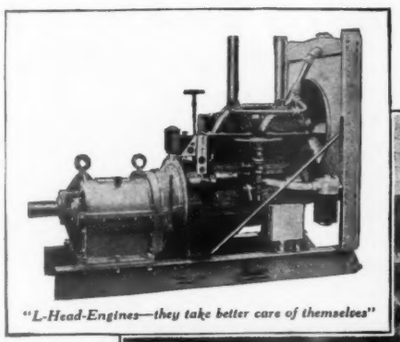
George J. Hausen, Inc., San Francisco, Los Angeles and Taft, Calif.

HARRISBURG

Forged Seamless Steel Couplings



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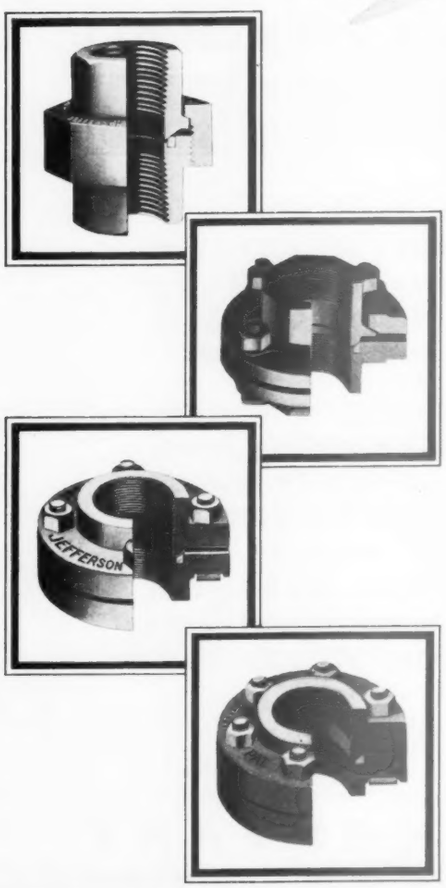

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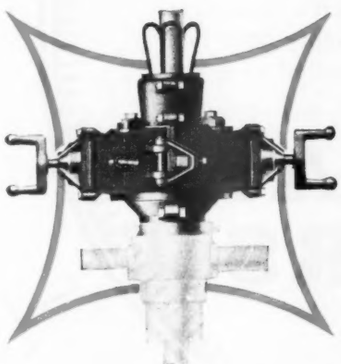

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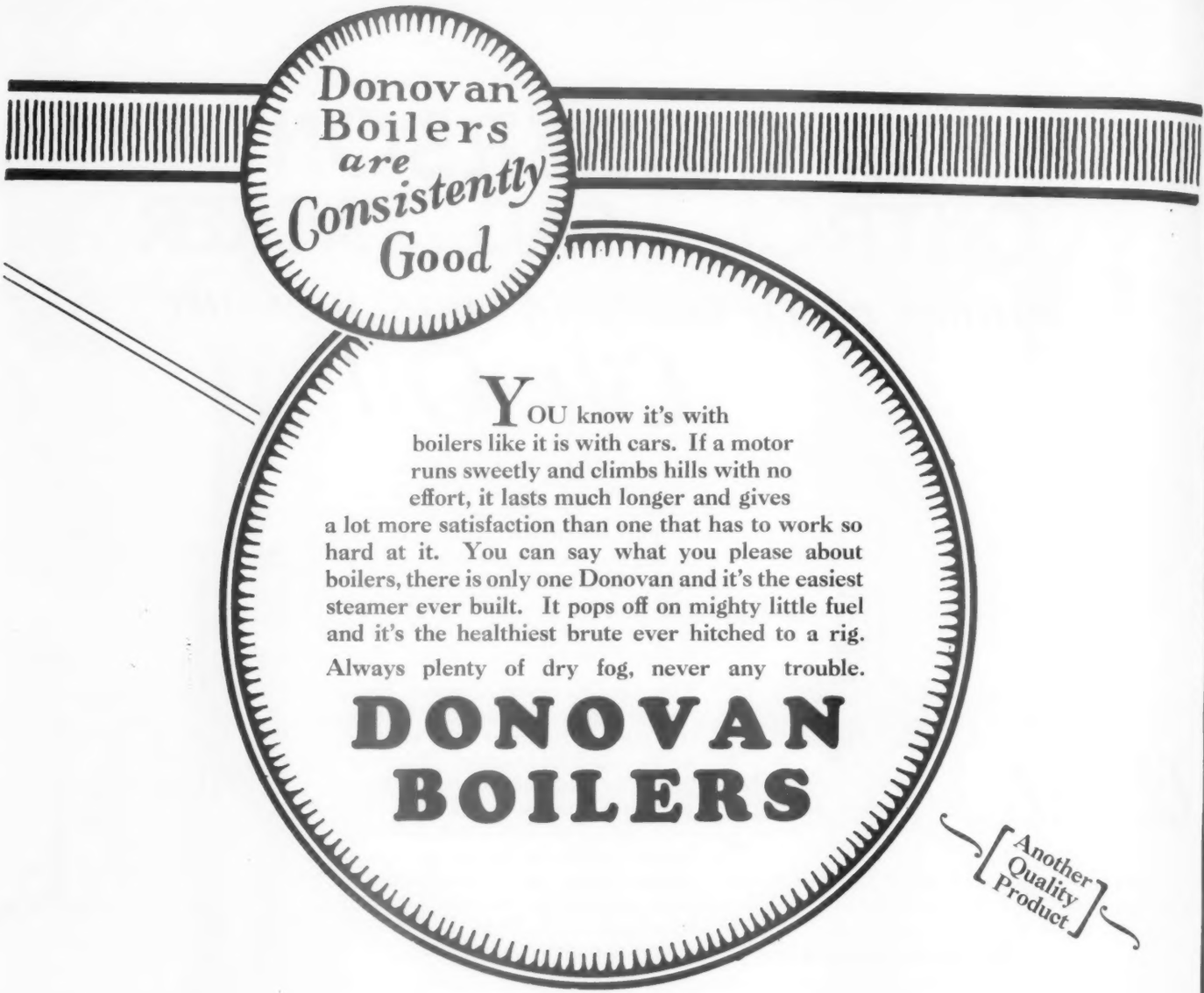
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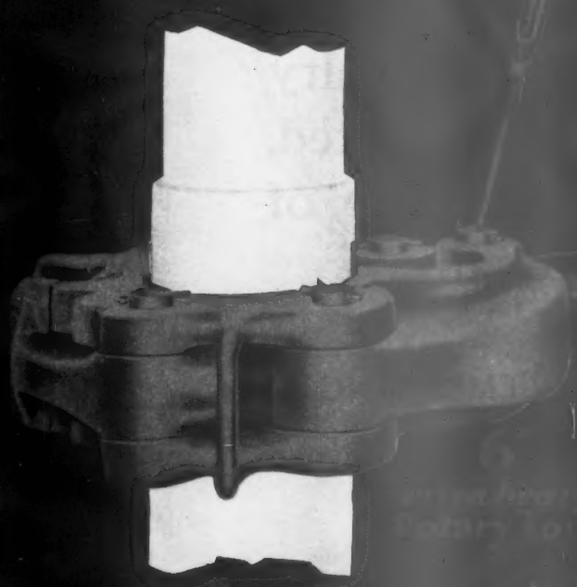

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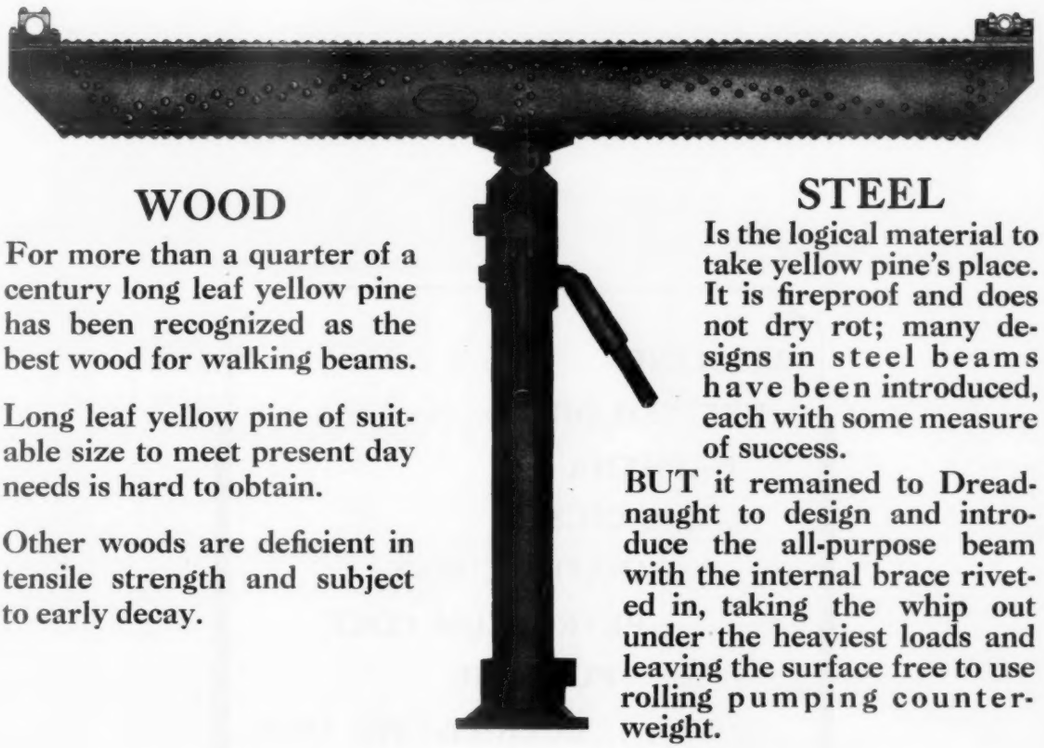
STEEL WALKING BEAMS



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FOR DEEP DRILLING AND PUMPING

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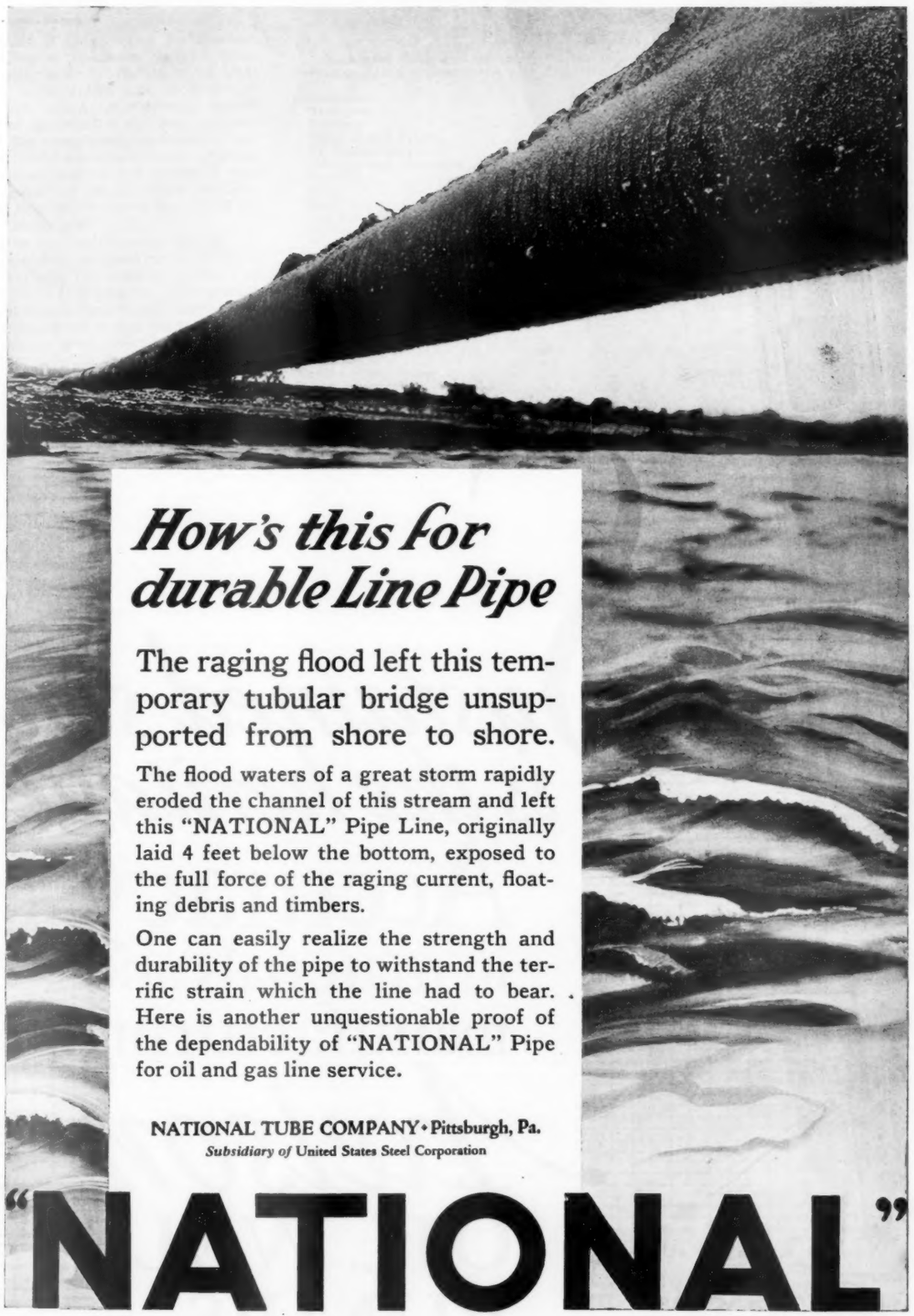
How's this for durable Line Pipe
The raging flood left this temporary tubular bridge unsupported from shore to shore.
The flood waters of a great storm rapidly eroded the channel of this stream and left this "NATIONAL" Pipe Line, originally laid 4 feet below the bottom, exposed to the full force of the raging current, floating debris and timbers.
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Mid-Continent and Eastern Distributors Frick-Reid Supply Corporation

Overproduction Problem Near Solution

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Plan to Hold Production in Oklahoma to Approximately 650,000 Bbls. Daily Big Forward Step in Conservation

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

Virtual agreement of operators in the Seminole and St. Louis areas of Oklahoma to take necessary steps in holding down production of the pools in those sections to the extent that the output of Oklahoma will not exceed approximately 650,000 barrels daily, if made effective, will go a long way towards solving the overproduction situation east of California. It would place an entirely different aspect on the entire situation and would at once remove any necessity for further crude oil price reductions in the light oil producing sections of the Mid-Continent area at least.

Overproduction in the United States, east of California, during December amounted to about 27,000 barrels daily, that being the quantity of crude oil placed in storage during that month. The quantity of overproduction now is considerably higher than the December figure as the output for the country has increased greatly since December while consumption has shown a decline. But the contemplated reduction in production in Oklahoma, together with the assurance that the opening of the Mission Pool in that State will not result in an additional flood of crude being thrown on an already surfeited market, will go further towards stabilizing conditions than anything else that has been done for months.

The situation in California has been made more acute by the discovery of another oil zone deeper than the Buckbee horizon in the Santa Fe Springs Field. Also by the opening of another productive sand in the Potrero Pool. California operators are fully aware of the seriousness of the situation in their State and the action this week of the operators in the Greater Seminole and St. Louis Pools of Oklahoma may result in some definite action being taken in California.

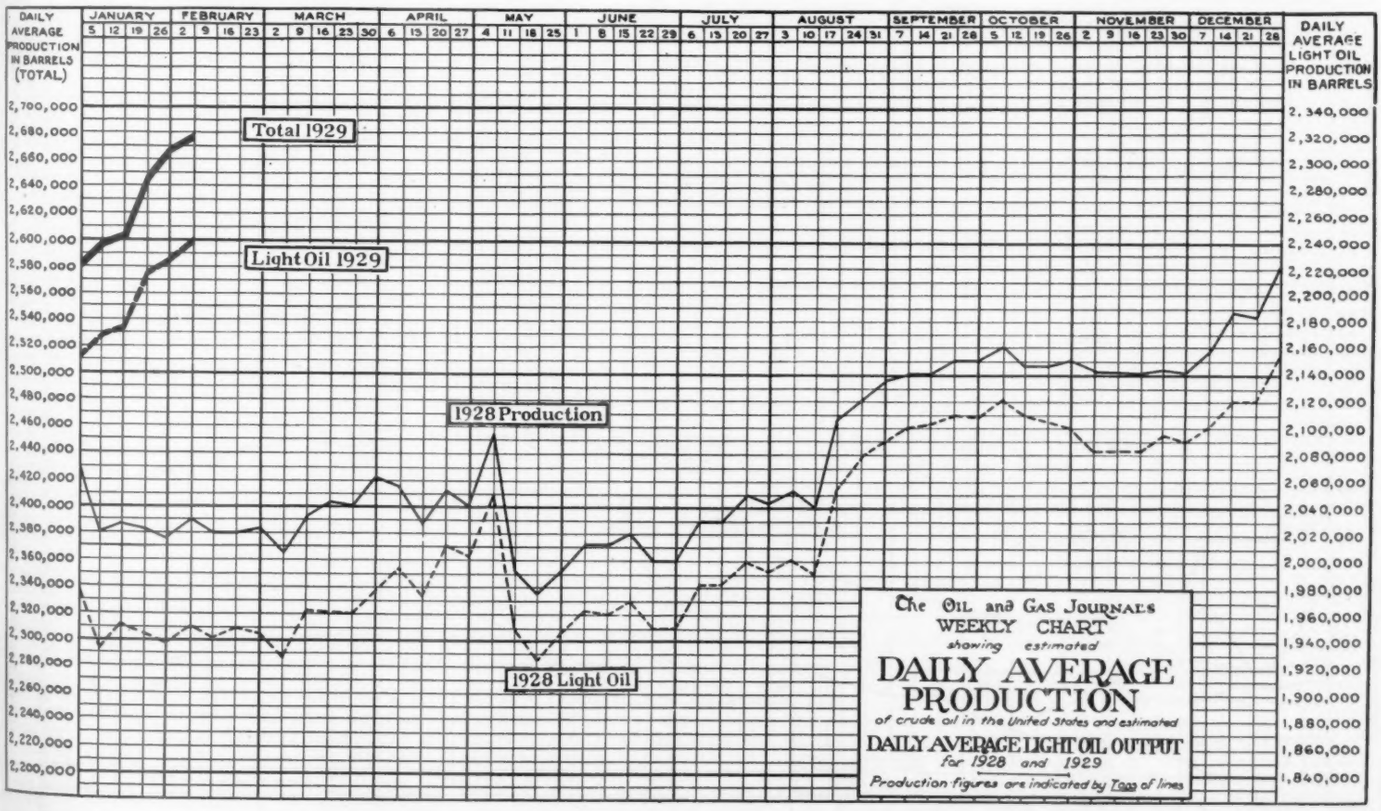
It has been remarked often the outlook in the petroleum industry can be changed, seemingly, overnight. Holding production in Oklahoma down to 650,000 barrels daily and making this effective quickly, will certainly change the outlook for the entire industry east of California at least.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended February 2, and a comparison with the previous week follows:

	Feb. 2		Jan. 26	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,945	.....	11,185	.....
Burbank	22,920	.....	23,220	.....
Other Osage Fields	26,010	.....	26,165	.....
St. Louis-Pearson	131,430	.....	130,040	.....
Cushing and Shamrock	20,580	.....	20,735	.....
Bristow	18,970	.....	19,020	.....
Allen	29,460	.....	27,840	.....
Seminole	294,770	.....	291,110	.....
Northern Miscellaneous	115,640	.....	116,135	.....
Southern Fields	57,620	.....	57,915	.....
Total Oklahoma	728,345	.....	723,365	.....
West Texas—				
Hendricks	177,251	.....	176,854	.....
Yates	74,029	.....	73,050	.....
Remainder	121,919	.....	121,136	.....
Total West Texas	373,199	.....	371,040	.....
North Louisiana	30,375	5,550	30,583	5,750
Arkansas	26,355	51,050	26,660	51,460
North Central Texas	136,921	.....	136,162	.....
Texas Panhandle	59,085	.....	61,065	.....
East Central Texas	21,529	.....	21,676	.....
Kansas	96,610	.....	97,315	.....
Total Mid-Continent Area	1,472,419	56,600	1,467,866	57,210
Gulf Coast	.....	139,775	.....	145,635
Southwest Texas	.....	50,037	.....	48,237
Eastern	112,000	.....	112,000	.....
Rocky Mountain Area	71,904	.....	70,108	.....
California—				
Santa Fe Springs	177,000	.....	170,000	.....
Long Beach	179,000	.....	180,000	.....
Torrance	2,000	13,500	2,000	13,500
Huntington Beach	47,500	.....	48,000	.....
Elwood	19,500	.....	17,500	.....
Inglewood	16,000	11,000	16,000	11,000
Ventura Avenue	55,000	.....	53,000	.....
Seal Beach	29,000	.....	28,000	.....
Remainder of State	59,000	167,000	60,000	167,000
Total California	584,000	191,500	574,500	191,500
Total United States	2,240,323	437,912	2,224,474	442,582
Grand Total	2,678,235		2,667,056	

→ **Total Increase, 11,179 Bbls.; Light Oil Increase, 15,849 Bbls.** ←



Fuel Market Stronger in Oklahoma

Better Grades of Fuel Oils, Gas Oils and Furnace Oil Distillate Advance in Response to Strong Demand. Refinery Gasolines Unchanged

By C. O. Willson

Furnace oil distillates, gas oils and high gravity fuel oils or low cold test were the strong products of the past week in the Oklahoma (Group 3) refinery market.

The demand for these products in the Oklahoma market far exceeded the supply and sellers had no difficulty in advancing their prices. Considerable quantities of 38-40 straw distillate were sold during the week at 4 cents a gallon with sales as high as 4¼ cents reported. Gas oil was strong, the low cold test grades selling at a minimum of 3 cents. The high gravity fuel oils of low cold test were practically unobtainable on the spot market the first of the week. Refiners were taking care of their regular trade at prices which were from 5 to 10 cents a barrel higher than the January market but they had very little excess material to offer on the general market.

Prices on the high cold test fuel oils regardless of gravity were unchanged. Some observers however believe that a general advance in fuel oils in the Oklahoma and Kansas market will materialize before the end of the month. The stock situation is improving rapidly and continued cold weather assures a strong demand. If the advance materializes it will be the first rise in the Oklahoma market in over a year and the first change in the low gravity grades in several months.

There were no important changes in the refinery gasoline market. A week ago, as was explained in these columns, the larger refiners in the state following the reduction in crude oil prices, reduced their U. S. Motor gasoline price to 7 cents a gallon with similar reductions in the higher gravity grades. Practically all of the refiners report a better movement at the lower prices and there were no further reductions during the week. The U. S. Motor grades were available from some of the smaller refiners as low as 6½ cents but the volume of this business was not large. At least two of these refiners who have been quoting under the general market for several weeks were asking 7 cents for their U. S. Motor gasoline to the trade.

Barring another reduction in crude oil price schedules in the Mid-Continent or a heavy export buying the refiners expect their gasoline market to continue around the present price levels for the remainder of the month. February is the month of minimum demand in the domestic market, a seasonal development. Refiners are not expecting a heavy gasoline movement and in most cases are in a position to store the excess supply.

The natural gasoline outlook for February is not so favorable at this writing. Heavy buying during January ran this market up so that the last week of the month the Grade A sold as high as 7¾ cents and Grade AA was sold at 7 cents. Since the opening of February large purchases of all grades have been conspicuous by their absence and prices on Tuesday were from one-fourth to one-half cents under the high of January.

It is not believed that the January buyers will again get in the market until there have been further price reductions. Manufacturers are confident that the export demand will prevent any large decline in prices. The grades BB and C are the weakest of the five grades and buying was slow the first of the week.

REFINED MARKET BAROMETER

Continued downward adjustments were made in gasoline tank wagon and service station prices in several consuming areas during the past week and these changes continued to disturb the refinery tank car markets. Following the reductions of last week, however, the refinery gasoline prices were steady in a majority of the refining areas although some reported a very slow domestic movement due to unfavorable weather conditions. In the Los Angeles basin the situation was acute a chaotic condition existing in both the refinery and retail markets. At interior points the high gravity grades of fuel oils, gas oils and distillates were strong and price advances materialized in these grades. The coastal fuel markets were unchanged with continued weakness apparent in California. Kerosene prices were steady during the week with an improvement noted in the export movement. Price reductions became effective in the eastern markets on several grades of cylinder stocks. Prices also lowered on paraffin wax in both the eastern and Mid-Continent markets. Natural gasoline prices were reduced in Mid-Continent and unchanged in California.

Mid-Continent—Strong demand and higher prices in all refining areas for high gravity fuel oils, gas oils and furnace oils. High cold test fuel oils unchanged. Kerosene prices firm. Little change in refinery gasolines. Natural gasolines lower. Paraffin wax lower. Lubricants firm.

East Coast—Market irregular with greatest strength in export market. Some shading of prices in gasoline tank car market. Kerosene active. Cylinder stock prices lower. Wax inactive and prices lower. Active demand for gas oil. Export prices on gasoline and kerosene unchanged.

Pennsylvania—Gasoline movement slow. Kerosene steady. Wax prices lower. Some grades of steam refined stocks and bright stocks lowered. Fuel oil unchanged.

Chicago—Strongest demand for all grades of furnace oils and gas oils. Gasoline demand light due to unfavorable weather conditions.

Gulf Coast—Prices on several grades of neutral oils reduced. Better demand for fuel oil but prices unchanged. Export gasoline prices unchanged.

California—Continuance of retail price war in Los Angeles area reduces tank car prices at refineries for local shipment. Fuel oil weak.

Bureau of Mines Report

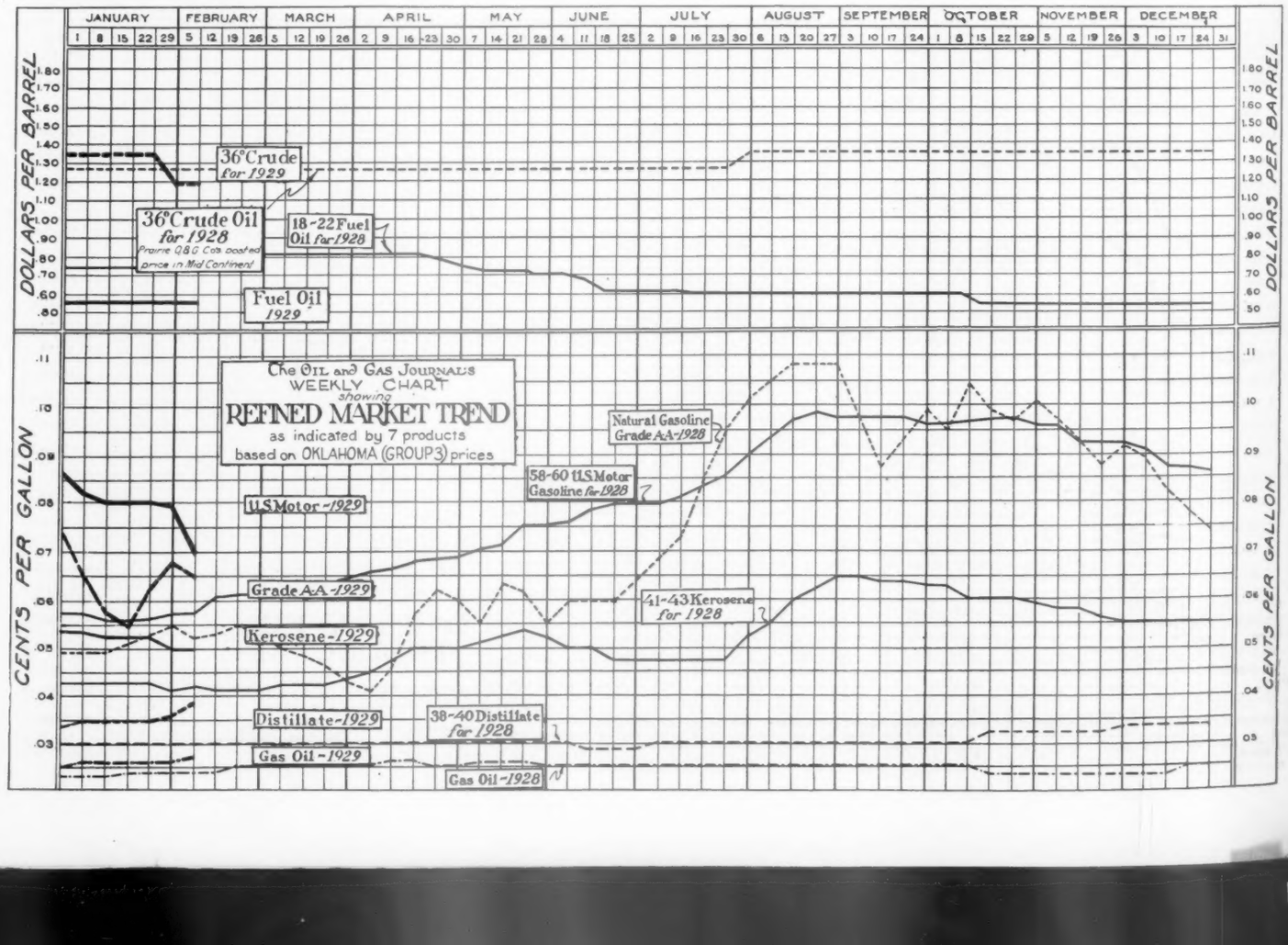
The Bureau of Mines report for December was released during the past week and the data for the Mid-Continent area covering crude oil runs to stills, gasoline production and gasoline stocks at the end of the month are given in the accompanying table. For comparison the same information is given for December, 1927.

(Continued on Page 133)

MID-CONTINENT REFINERY OPERATIONS
(Thousands of barrels)

	December, 1928			December, 1927		
	Crude to stills	Gasoline output	†Gasoline stocks	Crude to stills	Gasoline output	Gasoline stocks
Oklahoma-Kansas	9.636	5,182	3.691	8.484	4.590	2,983
Texas*	4.363	1,651	800	3,188	1.270	692
Louisiana and Arkansas*	2.096	621	179	1,581	423	78
Total	16,095	7,454	4.670	13,253	6.283	3,753

*Except Gulf Coast. †Stocks end of month.



Plan to Curtail Oklahoma Production

Seminole and St. Louis Operators Virtually Agree to Limit Output in Order to Hold State to 650,000 Bbls. Daily

By J. L. Dwyer

Two meetings of Oklahoma oil producers held in Tulsa on Tuesday, February 5, have probably accomplished considerably more in the way of real conservation than the numerous other meetings which have attempted to cope with the rapidly mounting production of the fields of the state. The meetings were both called to order by Umpire Ray M. Collins. The first was a session of operators interested in the Mission Pool of the Seminole region, while the second was a meeting of all oil producers interested in the Greater Seminole region.

The latter was fairly well attended. After three and one-half hours' debate as to how the problem of Oklahoma's overproduction could best be handled, a committee composed of C. C. Herndon, vice president of the Skelly Oil Co.; W. C. Franklin, vice president of the Tidal Oil Co.; and T. B. Slick, independent oil producer, evolved a resolution which is expected to meet the approval of the majority of the producers of the Greater Seminole area.

The resolution calls for an immediate reduction of 78,000 bbls. daily from the output of the state, which is now 728,000 bbls. the proration of oil in all pools of the Greater Seminole area, including the St. Louis Pool of Pottawatomie County (which has been classified by some as being separate from Seminole), and it places the setting in motion of this plan in the hands of Umpire Collins, allowing him to employ sufficient assistants to take all necessary gauges of the properties affected.

Curtail About 18 Per Cent

The proration is to be applied on a percentage basis by leases upon information furnished to, and upon gauges taken by or under the direction of the umpire and his assistants twice each month. Since the area which is to be the subject of proration is now producing approximately 425,000 bbls. daily, and a reduction of 78,000 bbls. is to be made, the proration which will take place in the Greater Seminole area under the terms of this plan amounts to 18 per cent of the present output of the leases in the region.

This general plan of operation is the consequence of a series of informal conferences which the producing interests in this territory have been holding. Some drastic action was deemed necessary in order to prevent any further decline in the crude oil market.

At a meeting held on Friday, February 1, the following resolution which really paved the way for the resolution of Tuesday meetings was passed: "It is the consensus of opinion of the above named producers in the State of Oklahoma that there is approximately 50,000 to 75,000 bbls. daily being produced in excess of consumption with other large production immediately in prospect. Therefore, in order to adopt definite and constructive means of conservation, Ray M. Collins is employed as oil and gas conservation umpire until May 1, 1929, and is hereby directed to immediately assemble the operators interested in all the important producing areas in Oklahoma for the purpose of reaching agreements for curtailment of drilling, and reduction of production to the end that waste may be eliminated and the oil and gas resources in such state may be conserved. Said producers pledge their assistance to the umpire to carry out this conservation program with the recommendations that efforts be made immediately to curtail in the Seminole district and other important areas a sufficient amount of production to maintain a balance between such production and consumption requirements.

"Nearly all of the producers named are also operators in Kansas and we endorse the same action as far as that State is concerned and recommend that a similar meeting be held at the earliest possible date to consider this same action."

This resolution was agreed to by officials of the following oil companies: Independent Oil & Gas Co., Phillips Petroleum Co., Skelly Oil Co., Prairie Oil & Gas Co., T. B. Slick, Tidal Oil Co., Carter Oil Co., Shell Petroleum Corp., Indian Territory Illuminating Oil Co., Gypsy Oil Co., Barnsdall Oil Co., Producers & Refiners Corp., Empire Oil & Refining Co., Sinclair Oil & Gas Co., Pure Oil Co., and Amerada Petroleum Corp.

May Be Effective February 10

The net result of the meeting of all the Seminole operators which was held on February 5, is that the crude oil market will be saved from utter demoralization which would have resulted had the production of the State been allowed to proceed unchecked. As it is now, the daily production exceeds the daily requirements of the Oklahoma-Kansas territory by approximately 50,000 bbls. daily. Lopping off this amount and 28,000 bbls. additional from the present production until May 1 as the resolution provides, is believed to present a real remedy to the situation.

Immediately upon the acceptance of this plan by the producers, it is stated that the work of obtaining the necessary affidavits to be made by the producers stating their daily production for the first five days of February will be started. If no further delays are encountered, the plan may be put into action by February 10, five days before the time allowed for drilling the Mission Pool wells into the sand.

The plan proposed in the resolution prepared by Messrs. Herndon, Franklin and Slick is believed to be the most constructive piece of work which the Mid-Continent branch (at least) of the petroleum industry has witnessed since the opening of the Seminole area. It immediately and without frills or fancy decline curves presents a method of reducing the output of the state to a point where it has prospects of remaining within market requirements for some time, a condition which has not prevailed since July 1926.

While no vote was taken upon the adoption of the resolution, it is understood that the sentiment of the producers having the largest output in the Seminole region will unanimously favor its adoption.

Several Ideas Presented

The Herndon-Franklin-Slick resolution was presented after a most thorough discussion regarding the most effective manner of handling the production of Oklahoma. There were several plans considered, the first one being read by Umpire Collins and embodying the idea of putting the wells on different leases into groups, shutting in the wells on the north line first and shutting in the offsets, and then shutting in all wells on the south line of the properties along with their producing offsets. The shut-in time of these operations was scheduled for three days. This plan seemed to have the hearty endorsement of Mr. Slick, who has always been opposed to any proration which was based upon a percentage of the oil produced.

E. H. Moore, president of the Independent Oil & Gas Co. in discussing the plan outlined by Mr. Collins, declared that a much more simple plan of proration could be accomplished by the producers if they would agree to reduce their output by any given percentage. He pointed out that while the plan read by the umpire required considerable time to start, the producers were acquainted with the current output of their respective leases, and that they could if they so desired immediately reduce the output of those leases by a voluntary proration. Commenting upon the general situation in the State, Mr. Moore said that if the meeting would commit itself to a program which would reduce the output of the State by 50,000 bbls. daily, it would serve all necessary purposes. He said that his company heartily favored the immediate reduction of oil production in the State, and that it would agree to any proration even as high as 50 per cent of its current Seminole output.

Speaking in opposition to the adoption of the plan read by Mr. Collins, Rush Greenslade, vice president of the Gypsy Oil Co., stated that in his opinion it contained mechanical difficulties which were too serious for its consideration. The fact that in many cases water would be allowed to remain upon the sand for three days while the well was taken off production was the first and most important objection, according to Mr. Greenslade, and the other objection from a mechanical point of view was that when some flowed by air lift are off production for three days, pressures as high as 1,000 pounds are required to kick them off. There are few leases having a compressor capacity sufficient to accomplish the building up of this pressure on several wells at one time, Mr. Greenslade said.

Among the others who participated in the discussion were Clyde Alexander, vice president and general manager of the Phillips Petroleum Co.; H. M. Staleup, vice president of the Skelly Oil Co., and W. N. Davis, president of the Mid-Continent Oil & Gas Association.

Discuss Mission Pool

The Mission Pool of Greater Seminole, now one of the most interesting operations of the State, was the topic of debate at a meeting held on Tuesday morning. The Mission Pool is located on the

(Continued on Page 132)

SEMINOLE PRORATION RESOLUTION

The resolution framed at the meeting of operators in the Greater Seminole Field held February 5, follows:

RESOLVED, That in the interest of conservation of petroleum and to meet the present condition of overproduction in Oklahoma, the following plan be and it is hereby adopted:

1. Oklahoma oil production shall be limited to approximately 650,000 bbls. per day, which figure represents the estimated present demand, and that figure shall be used until it is changed at a later meeting of like kind. The reduction of potential production in Oklahoma to said figure of approximately 650,000 bbls. per day shall be reached by proration of all greater Seminole Pools.

2. Proration shall be applied on a percentage basis by leases, upon information furnished to, and as far as practicable upon gauges taken by, or under the direction of the umpire, twice each month. The proration shall be such percentage of potential production as the umpire shall find necessary, pool by pool, to realize a like degree of actual proration among all pools, and to accomplish the object of holding the total Oklahoma production at approximately 650,000 bbls. per day. To make the actual or realized proration operate equally among different pools, the umpire may, so far as he finds necessary, compensate for differing rates of decline by applying different percentages to the several pools. For example, if a realized proration of 15 per cent is necessary at a given time in order to hold the total figure at 650,000 bbls. per day, the umpire may apply to a settled pool a proration of 17½ per cent, if he finds that percentage, applied lease by lease, achieves a realized proration of 15 per cent; while in a pool more flush in character, the umpire may find that in order to realize a proration of 15 per cent, he needs to apply to the leases in such pool a cut of 30 per cent, and he shall govern himself accordingly.

3. To set this plan in motion, the umpire shall forthwith request from each producer an affidavit showing his production by leases in the first five days of February and the average of the daily production so shown shall constitute potential until gauges can be taken.

4. All drilling wells shall take a delay, prior to drilling into the sand, of a number of days having a relation to the average drilling time on Seminole wells, considered to be 75 days, equal to the actual or realized percentage of proration then currently in effect.

5. The Wilcox sand in the western Section of Township 8, Range 5, shall not be brought into production, except that in the case of an expiring lease, a well which has failed to obtain commercial production in the Misener or Hunton formations may, by special arrangement between the operator and the umpire, be allowed to penetrate the Wilcox sand and to produce therefrom only such amount of production, not exceeding 100 bbls. per day, as shall protect the lease.

6. The inadvisability of having the Mission Pool opened at this time is recognized and the operators in that area are urged to co-operate with the umpire in a plan that will postpone the bringing of that pool into production.

7. The administration of this plan is committed to Ray M. Collins, who is hereby authorized to act as conservation umpire for this purpose, and the said umpire is authorized to employ as many assistants as he shall deem necessary, not exceeding 15 in number, to adminster this plan.

8. In addition to the pools and areas hereinbefore specifically referred to, other outside areas do now threaten and from time to time will threaten to add to the burden of overproduction, and recognition is hereby given to the desirability of having all such areas restrict or postpone operations to the greatest possible extent, and all operators therein are urged to co-operate sympathetically with the umpire in an effort to hold such areas back from production.

9. This resolution is intended to be effective for the period ending May 1, 1929, but may be sooner modified or revoked by the action of a like meeting of Greater Seminole operators.

Subsurface Conditions in Sedgwick

Wells in Wright Pool and Recent Discoveries in Marion County Have Completely Changed the Outlook for That Part of the State

By J. L. Dwyer

The subsurface conditions encountered in the wells recently completed in the central part of Kansas have caused much interest. The wells of the Wright Pool of Sedgwick County, and the recent discoveries in Marion County around the well drilled by Courtney B. Davis have completely changed the outlook for this part of the State, and the territory between these productive spots will be the scene of much activity, as previously mentioned in these columns.

The wells around Valley Center in Sedgwick County are mainly producing from a horizon which correlates with the Simpson sand of Oklahoma, but there is one well in the region which has caused much discussion regarding the horizon which contains the oil, and that is the Marland Production Co.'s No. 1 Goodrich, in Section 16-25-1e. Opinion regarding the sand in this well varies greatly. There are many who are inclined to believe that it is making its oil from the chat (which has produced in this region) and others are equally positive that it is making its oil from the same formation which produces the big pay at Valley Center.

Kansas City Lime

The cross section accompanying this story illustrates the relative position of the various formations in the district, and it will be noted that the first marker which is used is the Kansas City lime. This is a lime which outcrops near Kansas City, and it really is the first reliable marker encountered in the Sedgwick area. The Kansas City lime was found 1,105 feet below sea level in the Goodrich well, while in the main body of production, it was at its highest position in the Gypsy and others' No. 1 Lyons in Section 7-26-1e. In the No. 1 Lyons, the Kansas City formation was found at 1,211 feet below sea level. The Kansas City lime therefore was found 106 feet higher in the Marland's Goodrich well, than in any other well in the Sedgwick Pool.

The Marland's Goodrich well also seems to have a much higher surface elevation than the wells in the main pool, being 1,435 feet above sea level. The average wells in the Wright Pool have elevations running fairly constant, around 1,338 feet. The Goodrich well found the pay formation at 3,010 feet, and drilled it to 3,020 feet. This placed the sand at a below sea level depth at 1,575 feet, and considering its superior surface elevation, this depth is rather close to the position of the top of the Mississippi lime in the Wright Pool wells.

Since the chat formation which has produced in this region, is found slightly below the top of the Mississippi lime, and the production in the Marland well was found just below the top of the Mississippi lime, the theory that the well was making its oil from the chat originated. The short interval between the top of the Mississippi lime and the top of the chat seems to be constant with other wells, but the production of the well is so much greater than any chat well found in this region, that the theory was subjected to much doubt. In output, the well acts very much like the wells in the Wright Pool. Another check on the Goodrich well, is that the interval between the top of the Kansas City lime, and the top of the formation producing is 470 feet. This interval corresponds with the normal interval between the top of the Kansas City, and the top of the Mississippi in the other wells of the region.

Well a Complete Surprise

One well in the Wright Pool which caused a complete surprise was the Aladdin Oil Co., T. B. Slick and others' No. 1 Smyser, in Section 36-25-1w. This well was believed to be running so low that it had little chance for production in the Simpson sand, but it started off with 800 bbls. daily. The position of the formations in this well show a slight difference in the top of the Kansas City lime; a dip of 65 feet in the top of the Mississippi lime compared to the discovery well, and a dip of 59 feet on the top of the pay compared to the same well.

The Aladdin-Slick well was running so low that, previous to the finding of production, it was considered as being on the northwest edge of the pool. It was running fairly constant with the dry hole drilled by Allison & Fitzwilliams in Section 24-26-1w, south of the pool. The latter well had the top of the Kansas City lime 1,235 feet minus; the top of the Mississippi at 1,739 feet minus, and the top of the Simpson sand at 2,091 feet minus. It will be noted that the Aladdin-Slick well is only 3 feet higher on top of the sand than the Allison-Fitzwilliams well.

There is a very small difference in the top of the sand in the other wells in the Wright area, and they have penetrated only a short distance into the formation. About 5 feet of pay is the average.

Marion County Field

In the Marion County Field, the Empire Gas & Fuel Co.'s No. 1 Seiderman in Section 12-19-2e, found a formation at 2,823 feet, and drilled to 2,837 feet. This well was drilled down, when the chat (found productive in Courtney B. Davis' discovery well, Section 7-19-3) was found dry. The well is good for 375 bbls. daily in the deeper formation. The Mississippi lime is evidently running much higher in the Marion County region than it is in Sedgwick County, for the Davis well had an elevation of 1,347 feet, and found the top of the lime at 2,425 feet. The Empire well with an elevation of 1,349 feet found the top of this lime at 2,453 feet. This would give the Mississippi a minus of 1,104 feet in the Empire well, considerably higher than in the Wright wells, while the top of the pay in the well is 1,474 feet minus.

The exact character of the pay in the Empire well is also open to speculation. The majority identified it as Simpson sand when it was first discovered, but more recent expressions have tended to classify it as Viola lime. There has also been voiced the thought that the producing formation in the Florence Pool is also Viola.

The finding of the Viola in Kansas has been questioned by many. In a recent paper delivered before the Kansas Geological Society, Mrs. Fanny Carter

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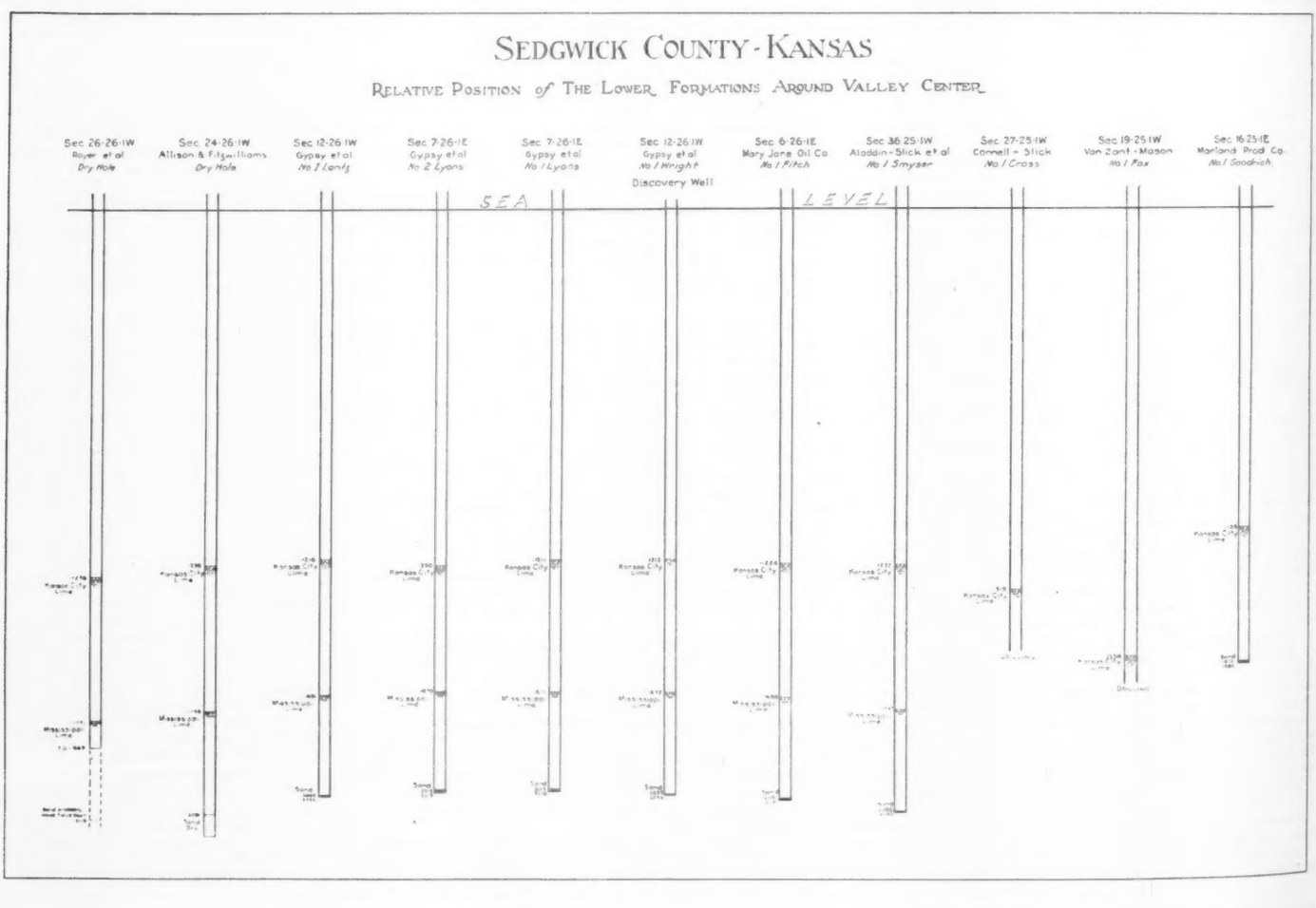
SEDGWICK COUNTY - KANSAS
RELATIVE POSITION of THE LOWER FORMATIONS AROUND VALLEY CENTER
Sec. 26-26-1W Royer et al Dry Hole
Sec. 24-26-1W Allison & Fitzwilliams Dry Hole
Sec. 12-26-1W Gypsy et al No. 1 Lantz
Sec. 7-26-1E Gypsy et al No. 2 Lyons
Sec. 7-26-1E Gypsy et al No. 1 Lyons
Sec. 12-26-1W Gypsy et al No. 1 Wright
Discovery Well
Sec. 6-26-1E Mary Jane Oil Co. No. 1 Fitch
Sec. 36-25-1W Aladdin - Slick et al No. 1 Smyser
Sec. 27-25-1W Connell - Slick No. 1 Cross
Sec. 19-25-1W Van Zant - Mason No. 1 Fox
Sec. 16-25-1E Marland Prod. Co. No. 1 Goodrich
SEA LEVEL
Kansas City Lime
Mississippi Lime
Sand

Twenty-Eight Plants in West Texas

Two Refineries Start Operating During Past Week With Six Under Construction. Market Conditions Bring Changes in Operating Methods

By C. O. Willson

The West Texas area increased in importance as a refining center during the past week when two additional refineries started operating.

At Pecos, the skimming plant of the Burford Oil Co. started operating on a basis of 2,000 bbls. daily of Winkler County crude oil. At Big Spring, the Great West Refining Co. is operating its new plant on a basis of 5,000 bbls. daily. The Great West plant is operating with crude oil secured by pipe line from the Howard County fields. Both plants have capacity in excess of their present crude oil runs and will increase their operations later.

With these two refineries, the West Texas area now has 22 operating plants with a rated crude oil capacity in excess of 100,000 bbls. daily. The indicated crude runs to stills as of the first of the month were 53,300 bbls. daily These figures are based on the data given in the accompanying table. It includes a few plants which are not within the crude oil producing area. Practically all of the crude oil with which they operate comes from the West Texas fields and the new plants were built due to the fact that section of the State has become a major producer of crude oil. Moreover in the marketing of their plant products all these companies are direct competitors of each other.

The data given in the accompanying table show that West Texas within a period of two years has become one of the major refining areas. Of the 22 plants listed as operating only six (Grayburg, Col-Tex, Pioneer, Rio Grande, Misko and Texas Mexican) were in operation previous to 1927. The plant of Sweetwater Oil & Refining Co. at Sweetwater had been built previous to 1927 but had been shut down until the discovery of large crude oil supplies enabled the reorganized company to resume operations.

In the Mid-Continent area based on crude oil runs to stills the West Texas operators refine more crude oil than do the Arkansas refiners or the North Louisiana group. Within the next few months when the new plants under construction are completed it is possible that West Texas will pass both the Kansas and the North and Central Texas refining areas in crude oil runs to stills and thus become second to Oklahoma as the largest refiner of crude oil in the Mid-Continent Field. Due to the character of the crude oil and the type of plants, West Texas refiners will not exceed Kansas and Central and North Texas refiners in output of gasoline, kerosene and other overhead products. However, due to the large residuum in the refinery operation the West Texas area will increase in importance as a factor in the Mid-Continent fuel oil market during the coming year.

New Plants

The accompanying tables show that in addition to the two refineries which started operating during the past week five plants are under construction. With the exception of the Gulf plant at Sweetwater and possibly the Texas plant at San Antonio all the plants now under construction should be completed by May 1. The Gulf plant will not be completed until September or October and the San Antonio plant of The Texas Company may not be completed until midsummer.

It will be noted in the table that with one exception all the plants now under construction will have cracking facilities. It will also be noted that among the refineries already operating only one company—the Grayburg Oil Co.—has cracking units in operation. The Grayburg refinery has been operating for several years and installed cracking units before it began to operate with West Texas crude oils.

The tables show that the cracking units now under construction total 38,450 bbls. daily. This fact points to an important change in West Texas refining methods indicating a trend which no doubt will be reflected in the operations of other companies later in the year.

Up until the past month companies operating in the West Texas refineries were not interested in cracking facilities. Their main concern was to build skimming or topping plants as soon as possible and start operating them. The crude oil was available at relatively low prices and favorable contracts were offered for the fuel oil residuum after 20 to 30 per cent of the light ends of the crude oil had been skimmed from the crude oil.

The railroads serving the West Texas area up until the past few months were willing to enter into long time contracts in which they have guaranteed the refiners from 65 to 85 cents a barrel for all or part of their fuel oil output. The fact that the location of the refineries

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REFINERIES IN WEST TEXAS
Operating Plants

Company and plant location—	Daily crude oil capacity	Daily cracking capacity	Daily crude runs to stills Feb. 1
Amarillo Producers & Refiners Corp., Pyote	3,000	....	2,000
Big Spring Refining Co., Big Spring	2,500	.....	2,500
Bluebonnet Oil Refining Co., Wickett	5,000	.....	4,000
Burford Oil Co., Pecos	6,000	*4,000	2,000
Central Texas Refining Co., Brownwood	2,000	.....	500
Col-Tex Refining Co., Colorado	10,000	.....	6,400
Grayburg Oil Co., San Antonio	6,000	1,200	2,400
Great West Refining Co., Big Spring	8,500	*1,500	5,000
Humble Oil & Refining Co., San Antonio	5,000	.....	4,500
Humble Oil & Refining Co., McCamey	15,000	*15,000	6,500
Misko Refineries, Inc., Laredo	1,500	.....	500
Midland Refining Co., Midland	2,500	.....	500
Pasotex Refining Co., El Paso	10,000	.....	4,000
Pecos Valley Refining Co., Pyote	5,000	.....	4,400
Pioneer Oil & Refining Co., Somerset	1,500	.....	900
Rio Grande Oil Co., El Paso	3,000	.....	2,800
San Angelo Refining Co., San Angelo	2,000	.....	700
Sweetwater Oil & Refining Co., Sweetwater	2,000	.....	(†)
Tonkawa Petroleum Co., Pyote	5,000	.....	2,700
Texas Mexican Oil & Refining Co., Laredo	500	.....	400
Texas Petroleum Products Co., Somerset	1,500	.....	500
Wickett Refining Co., Wickett	2,500	.....	(†)
Total	100,500	21,700	53,200

*Under construction. †The Sweetwater Oil & Refining Co. and the Wickett Refining Co. at present are operating with tops secured from other West Texas refineries. The Sweetwater plant refines approximately 400 bbls. of these tops daily and the Wickett plant 1,000 bbls. daily.

REFINERIES IN WEST TEXAS
Plants Under Construction

	Daily crude oil capacity	Daily cracking capacity
Amarillo Producers and Refiners Corp., Del Rio	2,500	.....
Cosden & Co., Big Spring	10,000	6,000
Gulf Refining Co., Sweetwater	*5,000	4,000
Richardson Refining Co., Big Spring	5,000	3,000
The Texas Company, San Antonio	3,000	3,300
The Texas Company, El Paso	1,500	1,650
Total	27,000	17,950
Grand total	127,500	39,650

*Plans for this refinery announced. Expect actual construction to start during February.

Protect, Not Plug, Old Gas Wells

S. W. Meals Urges Use as Storage for Surplus Gas. Problems in Measurement of Natural Gas Discussed

By S. W. Meals*

President, Carnegie Natural Gas Co.; Chairman, Natural Gas Department, A.G.A.

Repressuring the sands for recovery of oil has given the gas industry much valuable information as well as a new market for surplus gas. Storing natural gas in partly depleted sands is a practice that has been carried on for a number of years by several of the larger companies in the East. However, for certain reasons, very little information has been given to the public as the practice has been an operating convenience rather than a program of conservation. Large volumes of gas have been stored during the summer months and used when the demand required in sections of Kentucky, West Virginia, Pennsylvania, New York, Oklahoma and Texas.

The record of one company covers a period of over 10 years and, with an ideal storage reservoir found in a formation less than 1,000 feet in depth, covering an area of about 27 square miles with some 80 wells, they have stored over 8,000,000,000 feet. The gas was purchased from another company and stored during the summer months. When the company started injecting gas, the rock pressure was 26 pounds. It was found that to raise the rock pressure one pound required 218,000,000 feet and if this amount was taken out, reduced the rock pressure one pound. The pressure on the sand now is about 70 pounds. It would certainly require a flock of holders such as our friend, Mr. Mullaney, inaugurated at Chicago in December to store this volume of gas.

Our friends at Buffalo, N. Y., have made use of underground storage for a number of years, which has been of inestimable value in meeting the severe winter load. The gas was purchased in the Pennsylvania field when it was available during the summer months and stored. This storage field is located near the town of Concord in Erie County, New York, about 30 miles south of Buffalo. There are 23 wells now used for storing gas within an area of 800 acres. The average depth is 1,900 feet. The first well was drilled in 1888, having a volume estimated at 18,000,000 feet with 600 pounds rock pressure. In 1916 the rock pressure had declined to 48 pounds, when the company began storing gas. The greatest amount stored at any one time was about 300,000,000 feet but 2,681,199,000 feet has been stored and used out as needed since June, 1916. With 50 pounds differential over line pressure 10,000,000 feet per day can be taken out.

Butler, Pa., has not known a shortage of gas. An ideal operating condition exists due largely to one well in which gas is permitted to feed when the line pressure is built up. As the load decreases and the demand draws on the service, the gas stored in the well automatically supplies the demand.

In our operations in supplying the steel mills with natural gas, we have a well which has been in use in like manner as the well referred to at Butler, for almost 20 years. The well is near Pittsburgh and connected with a 24-inch pipe line to the mills. This gave a prompt response to any peak demand. Five years ago we injected gas from a high rock pressure well into this well, building up the pressure from 40 pounds to 90 pounds.

Storage in Burbank

You may be familiar with the report by J. L. Dwyer in the December, 1927, issue of The Oil and Gas Journal, of the Tidal Oil Co.'s operations in storing surplus or tail gas from the Burbank Field in a shallow sand on its Osage lease in Oklahoma. The depth of the sand was 928 feet with an initial rock pressure of 290 pounds. When gas was delivered from this field—to the drilling wells—withdrawal of 975,813,000 feet of gas from the wells caused the pressure to decline from 290 pounds to 123 pounds and 135,000,000 feet more withdrawn caused a further decline in rock pressure to 93

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*Before Pacific Coast Conference, American Gas Association, Los Angeles, February 7.

Ups and Downs of Crude Production

Seventeen Prominent Pools Showed Increased Output Last Year, With Five Pools Predominating. Many Declining Fields

By James McIntyre

The ups and downs of production offer an interesting study. The rapid rise to a peak once the development of a new pool is well under way; the sudden and severe decline, followed by the slower decline to the point where the curve becomes almost a straight line, is the story of nearly all of the great pools of recent years. For example, the Seminole City Pool opened in mid-year 1926, produced 10,838,823 bbls. the last half of the year; 47,039,644 bbls. in the year 1927 and then dropped to 18,237,004 bbls. in 1928. Its average daily production in 1926 (six months) was nearly 59,000 bbls. per day; in 1927, 128,000 bbls. per day; and in 1928, 49,800 bbls. per day, or below its mark in the few months in which the first crop of wells were coming in following the discovery.

The history of Seminole City may be repeated in Santa Fe Springs unless a deeper pay is uncovered in the latter field. The Maud and the Mission Pools in Oklahoma are expected to produce their big flush this year.

The fate of the present-day leading producing fields may be foreseen when we glance over the history of other great fields. Smackover in 1925 produced 73,975,613 bbls. of light and heavy oil, and in 1928 was down to 24,775,769 bbls. Wortham, which produced 16,024,035 bbls. in 1925, made only 664,582 bbls. three years later.

Seventeen Increased Production

Seventeen pools in the United States increased their production in 1928 by a total of 167,545,524 bbls. over their production of 1927. These 17 pools in 1927 produced 116,108,254 bbls., and in 1928, 283,653,778 bbls.

Fifty-nine other prominent pools, each of which showed a decline in production in 1928 as compared with the output of the year before, suffered a total decline of 165,959,819 bbls.

The increased production of the 17 pools was 1,585,705 bbls. more than the decline in the 59 other mentioned pools, but outside of the 76 pools above noted are the hundreds of miscellaneous pools throughout the United States, the combined production of which was 198,571,126 bbls. in 1927 and 189,734,656 bbls. in 1928, indicating a net decline in these miscellaneous areas of 8,836,470 bbls. The net increase was therefore 168,940,867 bbls., and the net decline 174,796,289 bbls., which left a total decline of 5,855,422 bbls. in 1928 as compared with 1927.

Among the miscellaneous pools are a number which showed a production increase last year and will show a much greater one this year, but they did not produce enough in 1928 to merit a place in the prominent pools set forth in the accompanying table, and their increase last year was engulfed in the natural decline of the hundreds of old pools that also figure in the miscellaneous list.

Many New Pools

Pools not having a place in the accompanying table of production changes, but which were opened in 1928 and most of which may be expected to produce more this year than last, are the following together with their total production in 1928:

Oklahoma City, Oklahoma	110,496
Garrett, Oklahoma	6,162
Glasscock County, Texas	45,597
Ward County, Texas	3,534
Fisher County, Texas	177,146
Scurry County, Texas	7,340
Dewalt, Texas	391,244
Allen Dome, Texas	15,879
Fannette, Texas	4,711
North Dayton	226,427
Raccoon Bend, Texas	111,417
Refugio, Texas	25,312
Joe Bruner, Texas	178,430
Larremore, Texas	6,076
Yoast, Texas	6,353
Moore County, Texas	309,334
Boggy Creek, Texas	309,272
Rooks County, Kansas	11,461
Sedgwick County, Kansas	378,851
Alkali Butte, Wyoming	5,721
Ant Hills, Wyoming	1,909
Lea County, New Mexico	56,198
Pondera, Montana	127,925
Bayou Bouillon, La.	237,561
Sorrento	273,066
Loreauville, La.	1,737
Potrero, Calif.	107,380
Lawndale, Calif.	15,686

Five Pools Predominated

The greatest increase in California last year was in the Long Beach Pool, which was given new lease of life by production from deeper sands. The pool produced 34,541,667 bbls. in 1927, and last year it increased to 62,467,103 bbls., a gain of 27,925,436 bbls.

In West Texas the Hendricks Field

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INCREASED PRODUCTION IN 1928

(In barrels of 42 gallons)

	Production in 1927	Production in 1928	Increase in 1928
St. Louis-Pearson-Maud, Oklahoma	1,406,020	21,878,954	20,472,934
Little River, Oklahoma	5,144,014	24,447,158	19,303,144
Hendricks Field, Texas	3,109,523	58,898,863	55,789,340
Yates Pool, Texas	5,250,173	22,673,875	17,423,702
Sholom Alechem, Oklahoma	5,255,516	5,382,386	126,870
Oxford-Churchill, Kansas	6,708,275	7,787,738	1,079,463
Champagnolle, Arkansas	.....	3,725,429	3,725,429
Long Beach, California	34,541,667	62,467,103	27,925,436
Santa Fe Springs, California	15,153,578	16,093,931	940,353
Ventura Avenue, California	17,808,704	18,920,942	1,112,238
Howard County, Texas	1,127,269	4,692,236	3,564,767
Bradford-Allegany, Pa.-N. Y.	7,314,500	8,418,000	1,103,500
Wilbarger, Texas	4,462,768	8,124,626	3,661,858
Gray County, Texas	3,966,412	7,795,865	3,829,453
South Liberty, Texas	1,102,830	1,404,499	301,669
Pierce Junction, Texas	3,163,585	3,983,484	819,899
Allen, Oklahoma	593,420	6,958,689	6,365,269
Total	116,108,254	283,653,778	167,545,524

DECREASED PRODUCTION IN 1928

	Production in 1927	Production in 1928	Decrease in 1928
Seminole City, Oklahoma	47,039,644	18,237,004	28,802,640
Earlsboro, Oklahoma	36,885,196	33,321,824	3,563,372
Bowlegs, Oklahoma	36,649,733	23,800,896	12,848,837
Searight, Oklahoma	10,232,511	5,218,241	5,014,270
Seal Beach, California	16,424,929	12,436,371	3,988,558
Upton-Crane, Texas	29,583,131	25,261,260	4,321,871
Smackover, (heavy) Arkansas	31,604,430	21,944,605	9,659,825
Midway-Sunset, California	31,670,708	27,314,093	4,356,615
Hutchinson County, Texas	32,240,493	13,839,632	18,400,861
Huntington Beach, California	26,344,697	19,642,278	6,702,419
Salt Creek Wyoming	14,397,590	14,066,816	330,774
Inglewood, California	12,751,556	10,762,797	1,988,759
Burbank, Oklahoma	15,266,099	13,060,449	2,205,650
Spindletop, Texas	21,264,935	14,332,357	6,932,578
Tonkawa, Oklahoma	7,747,200	4,878,203	2,868,997
Elk Hills, California	10,073,073	8,107,198	1,965,875
Archer County, Texas	9,648,832	7,374,445	2,274,387
Garber, Oklahoma	5,292,726	2,943,248	2,349,478
Big Lake, Texas	8,668,381	7,039,043	1,629,338
Powell, Texas	6,249,034	4,059,389	2,189,645
Torrance, California	8,338,938	6,454,067	1,884,871
Wewoka, Oklahoma	5,899,957	2,415,180	3,484,777
Bristow, Oklahoma	7,585,670	5,624,601	1,961,069
Luling, Texas	6,099,264	5,097,808	1,001,456
Dominguez, California	5,887,645	4,267,009	1,620,636
Cushing-Shamrock, Oklahoma	6,942,017	6,521,413	420,604
Coalinga, California	7,154,599	4,655,284	2,499,315
Hull, Texas	5,914,333	4,115,268	1,799,065
Fullerton, California	7,008,934	5,743,044	1,265,890
Teeter-Pixley, Kansas	3,958,357	2,411,902	1,546,455
Sunburst, Montana	4,313,388	3,209,574	1,103,814
Montebello, California	5,498,252	4,369,638	1,128,614
Cromwell, Oklahoma	4,521,063	3,386,553	1,134,510
Electra, Texas	5,099,618	4,627,192	472,426
Rosecrans, California	3,506,116	2,392,325	1,113,791
Coyote, California	5,146,864	4,901,998	244,866
Smackover, (light) Arkansas	3,903,046	2,831,164	1,071,882
Braman, Oklahoma	3,585,073	1,611,121	1,973,952
Richfield, California	7,884,042	6,798,673	1,085,369
Healdton, Oklahoma	5,447,776	5,068,978	378,798
Seeley, Kansas	3,937,336	2,529,819	1,407,527
Mexia, Texas	4,127,388	2,552,468	1,574,920
Caddo, Louisiana	6,047,857	4,888,365	1,159,492
Burkburnett, Texas	4,592,203	4,031,011	561,192
Brownwood, Texas	7,519,647	4,257,159	3,262,488
Kern River, California	6,098,582	5,071,284	1,027,298
Mirando, Texas	4,540,520	3,098,196	1,442,324
Hewitt, Oklahoma	3,539,005	3,338,421	200,584
Urania, Louisiana	3,621,650	2,656,050	965,600
Graham-Fox, Oklahoma	3,307,351	2,563,822	743,529
Mounds-Beggs, Oklahoma	2,995,880	2,509,747	486,133
Orange, Texas	1,877,190	1,459,939	417,251
Papoose, Oklahoma	2,467,950	1,546,151	921,799
Haynesville, Louisiana	2,754,300	2,222,804	531,496
West Columbia, Texas	3,459,220	2,928,949	530,271
Wortham, Texas	1,137,396	664,582	472,814
Ventura-Newhall, California	2,197,644	2,096,343	101,301
Homer, Louisiana	1,813,009	1,576,940	236,069
Rainbow Bend, Kansas	802,672	471,840	330,832
Total	590,566,650	424,606,831	165,959,819
All other pools	197,175,783	189,734,656	7,441,127

SUMMARY OF PRODUCTION CHANGES

	Increase in 1928	Decrease in 1928
17 pools	167,545,524	.....
59 pools	.....	165,959,819
All other pools	.....	7,441,127
Total	167,545,524	173,400,946

Total decrease in production in 1928, 5,855,422 bbls.

TEXAS LEGISLATURE NOT LIKELY TO PASS OIL LEGISLATION

AUSTIN, Tex., Feb. 2.—After two open hearings marked in spots by fiery oratory and another open hearing scheduled for next week before the House Oil, Gas and Mining Committee, it appears to many close observers the bill broadening the powers of the Texas Railroad Commission, in matters of oil proration, will not pass the present Texas Legislature.

Some of those vigorously opposing the measure hold the opinion the most objectionable features will be removed before the bill is passed in the event it does pass. It is probable, according to several following the events at Austin, the House Committee will pass favorably on the bill as it stands. However, it appears doomed for defeat on the floor and the Senate is also believed to be opposed to the measure.

The storm of protest arose when the Railroad Commission wrote the bill and included in it Section J which gives the commission power upon its own motion or the motion of the majority of operators to invoke proration rules in any field in Texas. The bill as it stands is a revision of the laws of the commission and designed to better define its power and broaden them.

Another part of the bill vigorously objected to was the trial in Travis County of all litigation involving the commission. Those fighting this phase of the bill desire all cases to be tried in the counties of their origin rather than in Austin. Objections were voiced to that part of the bill broadening the powers of the commission in issuing carbon black manufacture permits and control over the natural gas of the Panhandle.

Origin of the Bill

W. B. Hamilton, chairman of the Oil and Gas Bureau of the West Texas Chamber of Commerce, in a statement on the eve of the hearing said:

"Through a misunderstanding as well as a wrong impression, many oil men in Texas are working under misapprehension in their opposition to House Bill 388, the Railroad Commission's conservation measure, which has been introduced in the House by Representative Long of Wichita Falls. Let me make it clear that this measure was written by the Railroad Commission, that the West Texas Chamber of Commerce had nothing to do with the writing of the bill and that it was written by the Railroad Commission after an experience of 10 years in attempting to sanely carry out rules and regulations relating to the industry, and to wisely put in effect measures that mean conservation of the State's greatest natural resource and particularly the greatest natural resource

(Continued on Page 58)

Refinery Runs Show Small Decrease

Additional Plants Start Operating in the West Texas Area. Considerable New Construction Work in Progress

By W. T. Ziegenhain

Refinery crude runs in the Mid-Continent will continue to be maintained well above the 500,000-bbl. a day mark during February, a slight decrease being shown over the average for January. Lower crude prices posted late in January served as an incentive to maintain crude runs, storing the finished oils where storage was available in hopes of better prices in the early summer. There was a noticeable curtailment of runs in a few of the large plants, but this was partially overcome by the starting up of the Burford Oil Co.'s 6,000-bbl. plant in Pecos Valley, West Texas; the Great West Refining Co.'s 5,000-bbl. plant in Big Spring, West Texas; the Humble Oil & Refining Co.'s two 2,000-bbl. topping plants at Breckenridge and Chilton, Tex., and the resumption of operations in the Illinois Oil Co.'s refinery at Cushing, Okla. Of the individual areas, West Texas showed the greatest increase, but this amounted to only 1,850 bbls. Kansas is credited with a decrease of 700 bbls. daily. Oklahoma runs have been reduced 1,900 bbls., the total of the small decreases in a number of plants more than equalizing the increase due to the resumption of operations in the Illinois Oil Co.'s plant.

At 505,700 bbls., the February estimated average, the runs will be about 90,000 bbls. higher than a year ago. This is largely due to the development of the refining industry in the West Texas fields, but along with this factor there were a number of idle plants which resumed operations during the year when gasoline prices were relatively high, and these same plants have continued to operate even though the refinery market has slipped to its present level. The drop in the gasoline price from 9½ to 9¾ cents to its present level of 6¾ to 7 cents has brought about a decrease in revenue on the average plant in the Mid-Continent of 55 to 60 cents per barrel of crude run. This is based on the average plant making a yield of 50 per cent gasoline, which is about the present performance. Since these higher prices, refiners have not received a corresponding decrease in their crude cost, the average decrease on the one cut made in Mid-Continent crude being 20 cents a barrel. Now as the pendulum swings to the extreme where even less than an operating margin is afforded, it is questionable whether all of the plants now operating will choose to continue. Many of them are probably operating principally in hopes of a turn in the market in the near future.

MID-CONTINENT REFINERY OPERATIONS
(Based on Operations February 1, 1929, and January 1, 1929)

Districts—	No. or plants Feb. 1	Daily crude cap. (bbls.) Feb. 1	Daily crack. cap. (bbls.) Feb. 1	Plants oper. Feb. 1	Runs to stills Feb. 1	Plants oper. Jan. 1	Runs to stills Jan. 1	Daily Inc. Feb. 1
Arkansas	8	38,800	9,700	8	28,450	8	28,700	*250
Kansas	19	136,500	68,800	15	89,600	16	90,300	*700
North Louisiana	6	55,700	16,800	6	43,200	6	42,600	600
Oklahoma	47	288,200	103,550	42	190,100	41	192,000	*1,900
N. and Cen. Texas	35	158,700	25,200	33	101,150	34	101,600	*450
West Texas	20	100,500	2,000	20	53,200	19	51,350	1,850
Total	136	778,400	226,050	126	505,700	124	506,550	1,850

*Decrease.

RUNS TO STILLS AT MID-CONTINENT REFINERIES

1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,860
May 1	407,355
June 1	426,170
July 1	428,075
August 1	457,800
September 1	422,150
October 1	420,955
November 1	426,654
December 1	417,455
1928	
January 1	415,125
February 1	418,275
March 1	427,145
April 1	451,225
May 1	479,225
June 1	487,135
July 1	506,310
August 1	543,625
September 1	563,270
October 1	547,820
November 1	550,000
December 1	520,000
1929	
January 1	508,550
February 1	505,700

Oklahoma

Except for the starting up of the Illinois Oil Co.'s refinery at Cushing, there was little change in the operating plants of Oklahoma. Considerable repair work and new construction is going on now in anticipation of the busy season later in the year. Work on the enlargement of the Anderson-Pritchard plant at Cyril from 2,500 to 5,000 bbls. is progressing and the new equipment is expected to be completed within several weeks' time. Preliminary construction work is progressing rapidly at the Independent Oil Co.'s plants at Okmulgee, Okla., and Kansas City, Kans., in preparation for the 1,800-bbl. Dubbs unit to be erected at each plant. The Dubbs unit being erected at the Wilcox Oil & Gas Co.'s plant at Bristow is also under full construction.

North Central Texas

Two topping plants were added to the list of operating plants in the North Central Texas area, the new plants belonging to the Humble Oil & Refining Co. These are located at Breckenridge and Chilton, and each has a capacity of 2,000 bbls. daily. The crude is not fully refined at these plants, the operations being limited to skimming off a narrow cut of gasoline for local consumption, and the rest of the crude is returned to the pipe lines for transfer to the company's plant on the Gulf. One plant was dropped from the list for the time being, namely the Amarillo Producers & Refiners Corp.'s plant at Isom. This is being dismantled and moved to Del Rio, where it will be enlarged to run 3,000 bbls. The name of the Kent-Middleton plant has been changed to the Central Texas Refining Co. after the purchase of the G. C. Kent interests by C. A. Middleton and the organization of the newer company.

West Texas

Slightly higher crude runs in the West Texas area again points to the increasing importance of this territory as a refinery center. On February 1 the Burford Oil Co. started operating its new 6,000-bbl. refinery at Pecos City and at present is running close to 2,000 bbls. daily. Work on the new tube and tank cracking units at the Humble Oil & Refining Co.'s plant at McCamey is progressing and when completed will afford additional capacity for about 10,000 bbls. of charging stock daily. Another job in progress is the enlargement of the Texas-Mexican Oil & Refining Co.'s plant at Laredo, where equipment is being added to bring the capacity to 500 bbls. daily.

Arkansas and Louisiana

There was practically no change in the operations of plants located in Arkansas and northern Louisiana.

Kansas

Except for the shutting down of the Barnsdall Refineries, Inc., plant at Wichita, there was little change in the operation of this group.

REFINERY OPERATIONS IN OKLAHOMA
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Feb. 1	Runs Jan. 1
Anderson-Prichard Oil Co., Cyril	2,500	1,500	2,000
Barnsdall Refineries, Inc., Barnsdall	6,000	3,700	3,700
Barnsdall Refineries, Inc., Okmulgee	10,000	3,000	3,000
Bell Oil & Gas Co., Grandfield	4,500	2,900	2,000
Bolene Refining Co., Enid	5,000	3,500	3,500
Canfield Refining Co., Yale	400	(*)	(*)
Champlin Refining Co., Enid	16,000	8,000	9,000
Continental Oil Co., Sapulpa	10,000	2,500	2,500
Cushing Refining & Gasoline Co., Blackwell	1,800	1,200	1,200
Cushing Oil & Gasoline Co., Cushing	3,500	2,000	2,000
Empire Oil & Refining Co., Cushing	5,000	4,700	4,700
Empire Oil & Refining Co., Okmulgee	4,000	4,000	4,000
Empire Oil & Refining Co., Ponca City	7,500	5,500	5,500
Garber Refineries, Inc., Garber	3,500	2,800	2,800
Gilmer Oil Co., Ringling	3,000	(*)	(*)
Globe Oil & Refining Co., Blackwell	7,500	5,000	5,000
Globe Oil & Refining Co., Cushing	8,000	9,000	9,000
Homaokla Oil Co., Allen	1,500	900	900
Illinois Oil Co., Cushing	3,000	2,200	(*)
Imperial Refining Co., Ardmore	5,000	2,500	2,000
Independent Oil & Gas Co., Okmulgee	5,000	3,400	3,200
Johnson Oil Refining Co., Cleveland	6,000	4,800	4,900
Mariand Refining Co., Ponca City	30,000	19,000	19,000
Mid-Continent Petroleum Corp., West Tulsa	40,000	23,000	23,000
Northwestern Refining Co., Tonkawa	2,500	3,000	3,000
Peppers Gasoline Co., Covington	1,000	800	700
Pierce Oil Corp., Sand Springs	8,000	7,200	7,200
Producers Oil Co., Bristow	2,500	800	800
Producers & Refiners Corp., West Tulsa	6,000	2,300	2,500
Pure Oil Co., Ardmore	5,000	2,000	2,000
Pure Oil Co., Muskogee	9,000	8,000	8,000
Rock Island Refining Co., Beckett	2,500	1,600	1,800
Sayre Oil & Refining Co., Sayre	500	(*)	(*)
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	5,000	4,800	4,800
Sinclair Refining Co., Muskogee	1,000	600	600
The Texas Company, West Tulsa	15,000	13,000	13,000
Texas Pacific Coal & Oil Co., Wynnewood	2,500	(*)	(*)
Tidal Refining Co., Drumright	10,000	8,000	10,000
Transcontinental Oil Co., Boynton	2,500	1,800	1,800
Transcontinental Oil Co., Bristow	5,000	3,500	4,300
Walters Refining Corp., Walters	1,000	(*)	(*)
Western Oil Corp., Beckett	2,000	1,400	1,400
White Oak Refining Co., Allen	3,000	2,500	2,500
Wilcox Oil & Gas Co., Bristow	1,000	500	600
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,300	3,100
Yale Oil Corp., Yale	1,500	900	1,000
Total	288,200	190,100	192,000

*Shut down.

REFINERY OPERATIONS IN WEST TEXAS
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Feb. 1	Runs Jan. 1
Amarillo Producers & Refiners Corp., Pyote	3,000	2,000	1,750
Big Spring Refining Co., Big Spring	2,500	2,500	2,500
Bluebonnet Oil Refining Co., Wickett	5,000	4,000	3,000
Burford Oil Co.	6,000	2,000	(‡)
Central Texas Refining Co., Brownwood	2,000	500	500
Col-Tex Refining Co., Colorado	10,000	6,400	6,600
Grayburg Oil Co., San Antonio	6,000	2,400	2,400
Great West Refining Co., Big Spring	8,500	5,000	(‡)
Humble Oil & Refining Co., San Antonio	5,000	4,500	3,000
Humble Oil & Refining Co., McCamey	15,000	6,500	9,000
Misko Refineries, Inc., Laredo	1,500	500	500
Midland Refining Co., Midland	2,500	500	1,800
Pasotex Petroleum Co., El Paso	10,000	4,000	5,000
Pecos Valley Refining Co., Pyote	5,000	4,400	4,900
Pioneer Oil & Refining Co., Somerset	1,500	900	900
Rio Grande Oil Co., El Paso	3,000	2,800	2,800
San Angelo Refining Co., San Angelo	2,000	700	2,000
Sweetwater Oil & Refining Co., Sweetwater	2,000	(‡)	(‡)
Tonkawa Petroleum Co., Pyote	5,000	2,700	3,600
Texas Mexican Oil & Refining Co., Laredo	1,000	400	500
Texas Petroleum Products Co., Somerset	1,500	500	500
Wickett Refining Co., Wickett	2,500	(†)	(†)
Total	100,500	53,200	51,350

*Shut down. †The Wickett Refining Co. operates with tops secured from the Bluebonnet Refining Co. The plant during February will handle approximately 1,000 bbls. of tops daily. ‡Running 800 bbls. tops daily. §Building.

REFINERY OPERATIONS IN KANSAS
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Feb. 1	Runs Jan. 1
Barnsdall Refineries, Inc., Wichita	4,000	(*)	2,500
Derby Oil Co., Wichita	6,000	3,500	4,000
Derby Oil Co., Russell	2,500	(*)	(*)
Eldorado Refining Co., Eldorado	3,500	2,200	2,200
Golden Rule Refining Co., Wichita	1,500	800	800
Hutchinson Oil Refining Co., Hutchinson	1,500	(*)	(*)
Kanotex Refining Co., Arkansas City	10,000	5,000	3,300
Manhattan Oil Co., Kansas City	6,000	4,100	3,400
Miller Petroleum Co., Humboldt	2,000	(*)	(*)
National Refining Co., Coffeyville	6,500	6,000	6,000
Peerless Oil Refining Co., Chanute	3,000	2,000	1,600
Shell Petroleum Corp., Arkansas City	22,000	20,000	20,000
Sinclair Refining Co., Coffeyville	10,000	8,000	7,500
Sinclair Refining Co., Argentine	9,500	8,000	8,500
Skelly Oil Co., Eldorado	23,000	10,500	10,800
Standard Oil Co. of Kansas, Neodesha	12,000	9,000	10,000
Vickers Petroleum Co., Potwin	3,500	1,800	2,000
White Eagle Oil & Refining Co., Augusta	10,000	8,000	7,000
Wilhoit Refining Co., Joplin	1,500	700	700
Total	136,500	89,600	90,300

*Shut down.

(Continued on Page 132)

Concrete Tanks for Storage of Oil

Making of Concrete to Resist Action of Sulphate Oils and Oil Waters. Structural Design and Mixing of Cement

By John F. Hough
Structural and Technical Bureau, Portland Cement Association

One of the most serious problems confronting the producer of petroleum today is the storage of crude oil. Reinforced portland cement concrete is a material that may be safely and economically employed for the construction of circular storage tanks.

The deteriorating action of crudes containing relatively high percentages of sulphates, imposes rather definite requirements on the material selected for structural retainers. The purpose of this paper is to point out the pertinent factors of making concrete in order that it may successfully resist the action of sulphate oils and oil waters.

Primary to the actual consideration of making concrete, is the equally important matter of structural design. Regardless of the quality of the concrete itself, if the structure in which it is placed is not structurally sound, the end sought may be defeated through no fault of the material. Concrete tanks are structures that require special consideration in design and methods of construction.

Figure 1—Reinforced concrete tank with concrete dome top, capacity 2,300,000 gallons. Constructed under the Hewett system, El Paso, Texas. For details see Figure 10.

Structural Design

Structural design is a matter to be handled by a competent engineer. There is a difference in character between a concrete structure subject to liquid pressure and the ordinary structure such as a bridge or a building. A qualified designing engineer will readily appreciate these differences, and after considering them will be able to render a design that will be structurally sound.

Concrete in the walls of circular tanks, while capable of carrying high compression stresses, may crack when subjected to relatively low tensile stress. To overcome this limitation reinforcing bars are embedded in the concrete walls, sufficient in area to take care of the hoop tension developed.

If the tensile unit stresses ordinarily used in other forms of construction are applied to tank design these cracks may open to objectionable widths with the repeated filling and emptying of the tank. The condition is further magnified by the tendency of the concrete to shrink during hardening which imposes an initial tension in the concrete and a corresponding compression in the embedded reinforcing.

Tension cracks in circular tanks can usually be traced to faulty design. Unit stresses of 14,000 or 16,000 pounds per square inch are too high when used in tank design and will frequently result in the development of cracks in the structure.

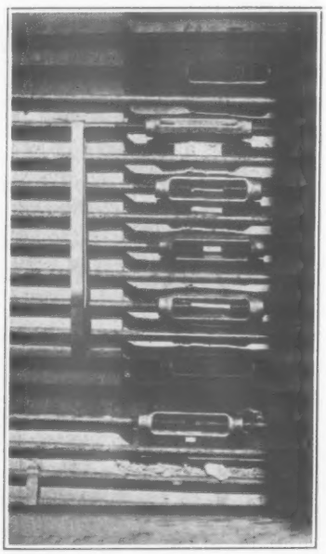


Figure 3—Turnbuckles for tightening hoops on outside of concrete walls. Note recess formed in tank wall to allow use of wrench or lever.

When the tank is filled the first effect is to increase the tension in the concrete to the point of breaking, thus throwing into the steel the full hoop tension due to hydrostatic pressure. This change is likely to occur suddenly, which will assist in breaking the bond between the reinforcing and concrete, and is likely to cause cracks in a vertical plane. Repeated filling of the improperly designed tank gradually causes further slippage between the reinforcing and the concrete in the region near the cracks, thus permitting them to widen.

It is nearly impossible to treat these cracks with liquid proofing for they open up only when the tank is full, and close to a certain extent when the tank is empty. Under the movement which results, the horizontal construction joints, especially the first one above the fixed base, are very likely to open up.

To overcome these difficulties in the conventional method of design, low unit stresses must be used. The best engineering practice in this respect limits these stresses to 8,000 to 10,000 pounds per square inch.

One method of design is that in which the difficulties of the initial shrinkage stresses are overcome by building the circular walls with only a nominal amount of horizontal reinforcing; practically no more than is necessary to hold the vertical reinforcing in place. As soon as the forms have been removed from the shell, steel hoops are placed around the walls and put under initial tension before the tank is filled. Each band or hoop is made up of several rods, depending in size and number on the size of the tank, and these rods are connected by standard turnbuckles. See Figure 3.

Recesses are formed in the outer surface of the wall to provide clearance for the turning of these turnbuckles. The rods are so assembled that in tightening the turnbuckles, the levers used can always be moved downwards. The rods are tightened to a predetermined initial tension by adjusting the length of the wrench or lever to the size of the rod and the weight of the man operating it. Since the man always tightens the rod with the wrench working down, and uses his whole weight on the wrench, very close results are obtained. Small variations are expected, but these are not serious enough to defeat the purpose of the design.

Figure 4—Steel bands or hoops around wall of tank before plaster or concrete covering is placed.

After all the hoops are tightened, the tank is filled with water for testing, following which the outer surface over and around the hoops is carefully covered with cement mortar, gunite or a thin wall of concrete thick enough to protect the bars from corrosion. This coating also gives additional bearing to the hoops. At times fabric is needed to hold this mortar covering in place, in which case it can be securely tied to the steel hoops.*

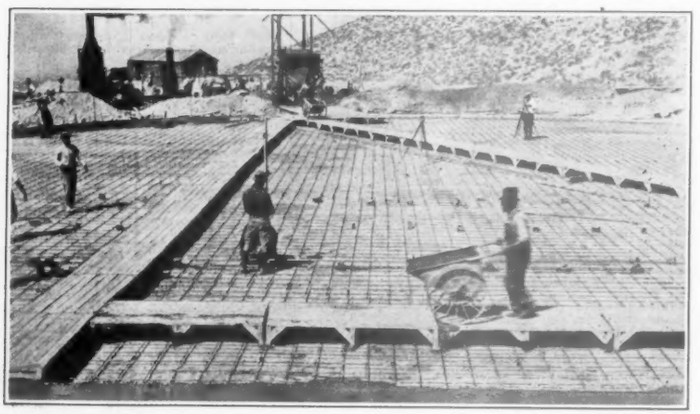


Figure 2—Placing concrete floor of 2,000,000-gallon circular tank, El Paso, Tex.

Regulating Factors for Design of Concrete

The basic principles of making concrete are the same regardless of the type of structure involved. Concrete is economical in that it may be designed to meet the requirements needed in any individual structure. These may be great or normal strength, high early strength or certain strength at a fixed time. Impermeability may be required, or liquid tightness. Resistance to wear or severe conditions of weathering may be the regulating factors for design. Any one or a combination of thes qualities may be embraced in the same structure. They are all interrelated in the basic facts controlling their achievement. On this account many of the same things enter into the discussion of concrete, whether it is to be used for a building, a road, a bridge or an oil tank. In the ensuing discussion the particular requirements of circular concrete tanks are analyzed and explained. The facts expounded may be justly applied to many other types of concrete structures, but are particularly pertinent in this case.

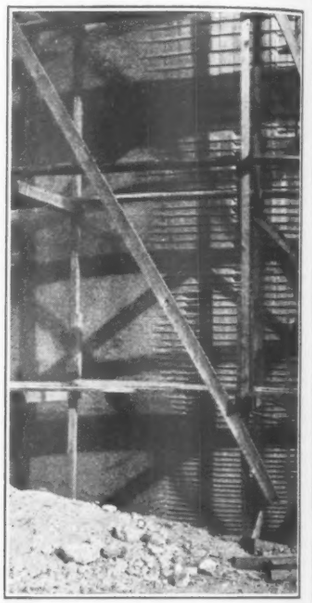


Figure 5—Gunite is being used on this 1,500,000-gallon circular tank to cover the steel hoops after they have been tightened and the tank tested. This tank is in Loveland, Colo.

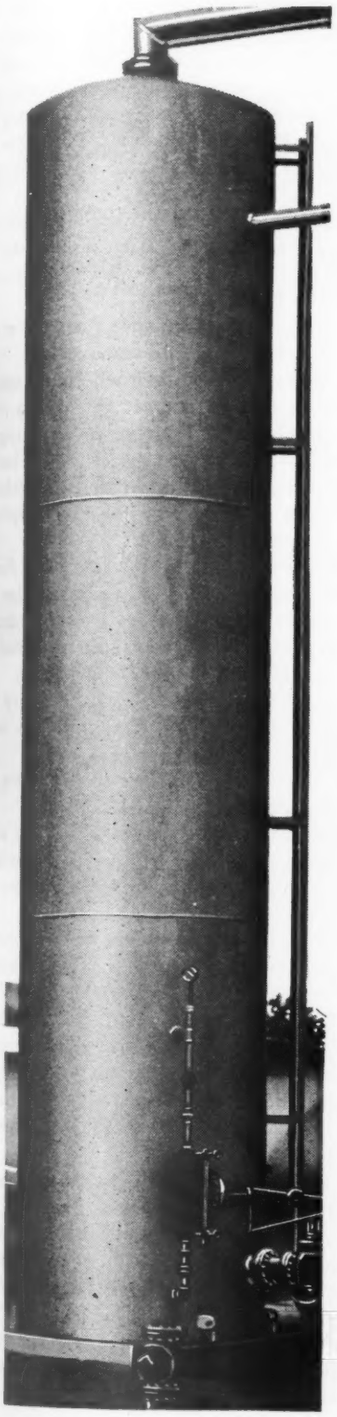
Water-Cement Ratio Law

The strength of concrete is usually measured by the compression necessary to fracture a specimen of standard dimensions. There is a definite law that regulates the compressive strength of concrete. This is called the water-cement ratio law. By water-cement ratio is

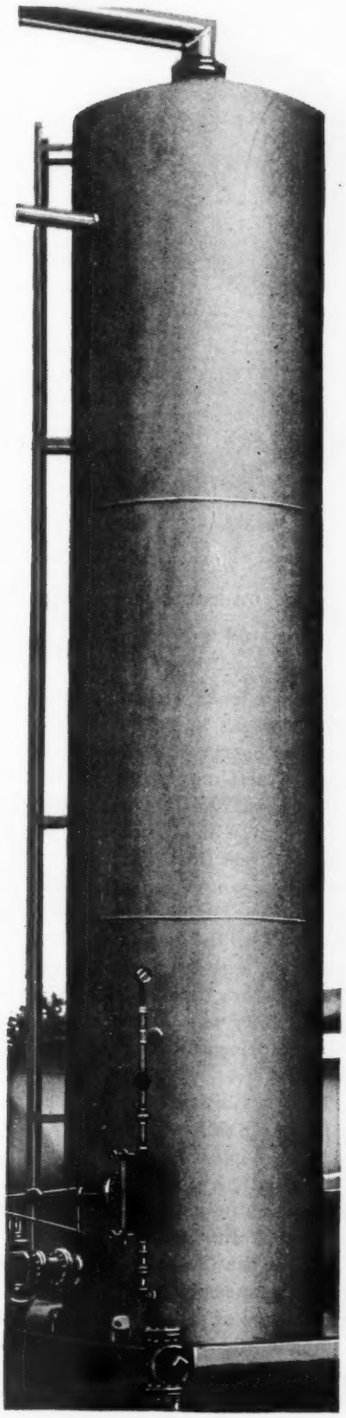
(Continued on Page 94)

*Author's Note—The method of designing and constructing circular tanks with the use of exterior hoops and turnbuckles mentioned in the text, is as developed by William S. Hewett of Minneapolis, Minn., and as discussed in a paper read before the Iowa Engineers' Society, January 24, 1923, entitled, "Reinforced Concrete Structures Subject to Hydraulic Pressure."

TWICE the PRODUCTION



without additional distillation unit or oil circulation



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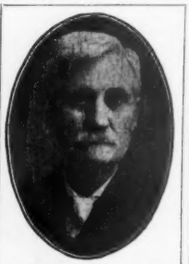

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NOT TOO LATE YET

Well, it looks very much like self-regulation.

Two weeks ago The Oil and Gas Journal suggested that the mounting overproduction of crude oil was leading to a slashing cut in crude, self-regulation by the industry or governmental control.

The reduction in crude came almost immediately.

Discussion of the proposed legislation in the oil-producing states developed just the differences of opinion that were expected. Those who feared any form of official interference in the operations of the industry found that something had to be done. Inaction was impossible in the face of crude cuts on one hand and the danger of regulatory legislation on the other.

The notion that voluntary co-operation had failed and that perhaps the only way to check overproduction was the ruthless slashing of crude prices did not seem so plausible after crude had actually been cut.

The possibility of further cuts did not appear pleasant.

This left self-regulation by the industry the only alternative to the risk of governmental control.

Getting the state legislatures to pass laws to regulate the operations of the industry as the industry wished to be regulated proved to be more difficult than expected for two reasons: the opposition of part of the industry to asking the states for any such legislation and the propensity of legislators to intrude their own ideas in legislation, some of which were not over friendly to the oil business.

Meanwhile overproduction soared to new heights and there was need for hurry.

The idea that the co-operative movement inaugurated at Seminole had finally failed and that the industry might have been better off if everyone had produced all he could in the past two years and "had it over and done with" did not stand up under analysis.

If there had been no curtailment in 1927 and 1928 and everybody had gone ahead producing conditions would have been a lot worse during that period and a lot worse today while to top all we would still have today's overproduction to deal with.

If we don't want state legislation to aid us or force us to do the sensible thing then we have got to offer some other remedy. Whether the curtailment movement fell short of what was expected or not there can be no denying that it did some good. So far as it may be considered to have failed the failure was not due to the principle of the movement but to failure of wholehearted and united support.

There is no longer the excuse that concerted action might be deemed a breach of the law. State authorities have helpfully co-operated in these movements. The Federal Government, through the Conservation Board, the Trade Commission and the Department of Justice has passively approved this effort for conservation.

Oil producers are free and have virtually been commanded to conserve oil by co-operation in curtailment. The only cause for failure is among oil men themselves not getting together and sticking together for the common good and the good of the country.

Self-regulation has not really had a fair chance because the few dissenters have not felt the weight of the industry's opinion against their attitude.

If every oil producer who believes that curtailment of overproduction is the logical remedy for the present situation and the sole hope for the future will impress that opinion upon his associates the force of popular opinion will be irresistible.

Public opinion can be a much mightier influence than any statute however drastic. That was shown during the wartime.

There is not the slightest doubt that the overwhelming opinion of the industry can be exerted to compel respect for such a proration movement as has been proposed in Oklahoma, reducing the state's production from the flush fields say 50,000 or 75,000 barrels.

Or, as has been suggested, if a proposal to reduce production by shutting down one day a week was taken up and generally approved the weight of opinion in the industry could enforce it.

The adoption of that simple expedient, which has been demonstrated successfully by labor unions and by other industries as a remedy for overproduction, would reduce the total overproduction to the vanishing point in a very short time and result in a readjustment of crude values that would change the whole situation.

Why, it has been asked, should the oil producing industry rush seven days a week to pile up overproduction when six days would take care of all possible demands?

The resulting increase in value of production would more than compensate for the superficial loss that might be feared.

After all, it is simply a question of the industry making up its mind to do something practical to check overproduction, whether by proration or by a shutdown of one day in seven, or whatever may be deemed best.

No one is going to interfere. There is no reason to dread governmental disapproval, state or federal, because the movement aims to conserve the natural wealth from which State and Nation profit.

The December report of the United States Bureau of Mines shows that an average of 88,000 barrels a day of crude went into storage during the month, swelling the surplus to 485,401,000 barrels.

The total added to storage in December was 2,729,000 barrels. The daily average production a week ago was 2,667,000 barrels and last week around 2,678,000 barrels.

In other words, the total added to storage during December was slightly more than one day's average production at present.

Failure to get together and stick together on whatever curtailment is needed to match supply with demand, whether the failure be in Oklahoma, Kansas, Texas, California or elsewhere, will react in every other region because producers cannot be expected to make sacrifices in one state and have those in other states reap the benefit.

And exactly the same feeling must prevail among individual operators who cannot be expected to submit to curtailment while others refuse.

If further crude cuts are to be avoided, if state legislation is feared and governmental control dreaded, self-regulation is the sole alternative left and it must be general enough to effect results.

The industry has unquestionably the power within itself to devise ways and means of bringing about the reduction needed to halt overproduction if it will tackle the situation with determination, iron out minor differences, and unite upon a constructive program of curtailment and stabilization.

It is not too late to make 1929 a good year for the oil industry if action is taken promptly.

Time Tested

The first Dresser line was installed about 40 years ago. As far as we know, it has never leaked nor cost one cent for repairs.

The aggregate length of the Dresser lines now in service is approximately 100,000 miles. They are operating under pressures up to 500 lbs. per square inch.

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IMPORTANT MEETINGS SCHEDULED FOR NEXT MONDAY IN ST. LOUIS

St. Louis will be a mecca for leaders of the petroleum industry next Monday when directors of the American Petroleum Institute and the executive committee of the board of directors will hold a special meeting and a public hearing will be conducted by the Federal Trade Commission on the Code of Ethics proposed by the Institute.

E. B. Reeser, president of the American Petroleum Institute, in his call for the special meeting of the board of directors stated two matters of especial importance would be considered; first, legislation pertaining to oil and gas production and, second, the proposal to fix a tariff on the importation of crude petroleum.

Directors of the Institute will meet at a dinner in the Statler Hotel at 6:45 p m. next Monday. A meeting of the executive committee has been called for 10 o'clock Tuesday morning, providing the directors have finished the business coming before them. Otherwise, the executive committee will meet at the close of the session of the directors.

It is expected the Committee of Nine, appointed recently by Mr. Reeser to study conditions affecting the petroleum industry throughout the country will report at the meeting Monday. Proposed legislation will form a chief topic of discussion at the meeting, it is understood, and the entire conservation movement and problems relating to the overproduction situation will be considered.

The St. Louis meeting is regarded as of especial importance at this time when the industry is confronted with an acute overproduction situation.

The trade practice conference by the Federal Trade Commission to consider the Code of Ethics proposed by the American Petroleum Institute will be held at the Statler Hotel, at 10 o'clock Monday morning. The Code of Ethics to govern practices in the marketing of petroleum products was approved by the American Petroleum Institute at the annual meeting in December and the St. Louis hearing is the first to be held by the Federal Trade Commission which has been asked to approve the code. Commissioner Edgar A. McCulloch will preside at the conference.

A general invitation to the entire industry to attend the conference has been extended. Many organizations will be represented by appointed delegates and a large number of proxies will be voted.

Among the practices that will be considered at the conference are: Interference with existing contracts; substitution of one grade of product for another; lottery schemes; sales from trucks; regulation of loaning or leasing gasoline pumps, tanks and equipment; discontinuance of such practices as the building of driveways and other extraordinary free services; leasing filling stations at abnormally low rents, or the subleasing of such stations for the purpose of price cutting or rebating.

ZONE BELOW BUCKBEE HORIZON DISCOVERED AT SANTA FE SPRINGS

LOS ANGELES, Calif., Feb. 5.—Another oil zone has been discovered below the Buckbee horizon in the Santa Fe Springs Field of Los Angeles Basin and while the potentiality of this new find has not yet been determined it looks like the beginning of deep Miocene production which proved so highly prolific at Long Beach. The new zone, if ultimately found productive will probably be designated as the O'Connell zone because its presence became known first in George Getty's No. 19 O'Connell which encountered the top of the new probable pay a few days ago at 6,480 feet.

Alternating shale and oil sand was cored above this point, the first oil contact coming at 6,400 feet or approximately 700 feet below the top of the Buckbee Zone, now undergoing intensive development.

Getty's new deep zone discovery well was still in the pay at last report and will probably be given an early test although a little more hole may be opened up before setting pipe.

Potrero Discovery

Another very important discovery was made within the past few days when the California Eastern Oil Co. cored 20 feet of solid oil sand in the townlot section of the Potrero Field which was opened up by the Associated Oil Co. more than a year ago.

The importance of both discoveries is quite obvious especially in view of the fact that considerable new drilling will be undertaken as soon as commercial production has been definitely proven up. Potrero does not look particularly threatening but development at this time of another deep prolific virgin sand at Santa Fe Springs will prove extremely disconcerting and may result in the establishment of another new yearly production record. The State's production record was made in 1923 but there is a possibility that the flood of oil during the current year will exceed the existing record by several million barrels.

Marketing Situation

Marketing conditions on the Pacific Coast have reffected the unfavorable production situation for several weeks past with the result that prices of gasoline and refined oils have shown a substantial downward tendency. Retail gasoline prices tumbled from 21 cents per gallon down to 16 and 17 cents more than a month ago. This condition has grown steadily worse and retail quotations in Los Angeles territory including the regular 3-cent state tax dropped to 15 cents per gallon over the past weekend. There is no standardized quotation as the practical withdrawal of most major refiners from service station trade has demoralized conditions and resellers are consequently establishing their own prices. Representatives of organized service station operators have been attempting to stabilize marketing conditions on the Pacific Coast without success for the past several weeks and it begins to look as though existing chaotic conditions will continue indefinitely or at least until some of the troublesome dealers run short of money and suspend operations.

The survival of the fittest movement is hitting many legitimate independent refiners and marketers very hard and is consequently working a hardship on many well-established concerns with excellent reputations built up over a long period of time.

High Spots in Field News

NORTH TEXAS

Another new Fry Pool found in Coleman County.

NORTH LOUISIANA-ARKANSAS

Gas companies active in Louisiana. Activity in leasing in Ouachita and Union County, Arkansas.

SOUTHWEST TEXAS

Joe Bruñer Field has 35 new locations. Foster-Barnsley No. 1 Webster, southeast edge Carolina-Texas Pool, is 50-bbl. pumper extension.

CALIFORNIA

New deep zone discovered below Buckbee at Santa Fe Springs. New sand at Potrero. Next 30 days to tell California story. Tests drilling to Miocene big factor in crude production this year.

KANSAS

Hays & Reynolds well in Sedgwick County has hole full of oil in Wright horizon. Simmons-Canary test was a failure. Marland Co.'s No. 1 Goodrich, north end of Sedgwick, pumped 1,500 bbls. first day which was cut 5 per cent.

GULF COAST

Important wells completed at Barbers Hill, Gay Hill and Pierce Junction.

Pure Oil Co. added another producer at Sweet Lake, Cameron Parish, estimated 600 bbls. daily, shallowest yet completed.

WEST TEXAS

Warner-Quinlan No. 1, Leck area, northern Winkler, estimated flowing 70,000,000 feet of gas and 400 bbls. from 3,105 feet. Prairie Co.'s No. 1 Daugherty flowing 23 bbls. per hour from 3,130-40 feet.

In southern Hendricks, Southern Crude Co.'s No. 1 T-88 is flowing 100 bbls. per hour and drilling at 2,908 feet.

Howard County proration extended three months.

NEW MEXICO

Marland's No. 1 Lynn was making 50,000,000 feet of gas and showing about 5 bbls. sulphur water at 3,930 feet. Empire's No. 1 State, C Lease, also encountered sulphur water.

Skelly Oil Co.'s No. 1 Joyner, deepened to 3,331 feet, reported flowing at rate of 85 bbls. per hour and shut in for storage. Well is on west side of Jal district, 10 miles north of Leek well in Winkler County, Texas.

OKLAHOMA

Greater Seminole again approached 300,000-bbl. mark. St. Louis Pool produced 126,094 bbls. T. B. Slick No. 1 Villines in south end of Maud, is failure in Simpson. Northeast of St. Louis Gypsy Co.'s No. 1 Guinn has 1,500 feet of water in Viola lime. North of St. Louis T. B. Slick and Maud Co.'s well is still producing 4,800 bbls. and cutting 25 per cent. Discovery well at Oklahoma City is holding flow well, 5,670 bbls. against back pressure of 90 pounds.

Late Fields

OKLAHOMA

The Greater Seminole area again approached the 300,000-bbl per day mark on Tuesday morning of this week. The output by pools was:

Pool—	Wells	Prod. (bbls.)
Little River	322	193,638
Maud	50	25,495
Mission	16	710
Bowlegs	312	41,808
Earlsboro	295	67,367
Seminole	250	40,034
Searight	69	9,301
Total	1,345	298,353

The St. Louis Pool produced 126,094 bbls. from 303 wells on the same morning. In the south end of the Maud area, T. B. Slick's No. 1 Villines, NE cor. SE Section 20-8-5, is a failure in the Simpson sand with a hole full of water found 4,468-4,532 feet. One and one-half miles northeast of the St. Louis Pool, the Gypsy Oil Co.'s No. 1 Guinn, NE cor. SE NW Section 9-7-5, has 1,500 feet of water in the Viola lime from 4,545-48 feet. The test does not look promising.

North of the St. Louis Pool, T. B. Slick and the Maud Oil & Gas Co.'s No. 2 Davis is still producing 4,800 bbls. and cutting 25 per cent.

The discovery well at Oklahoma City is holding its flow very well. It is Indian Territory Illuminating Oil Co.'s No. 1 fee, C SE SE Section 24-11-3w, and it is flowing 5,670 bbls. daily against a back pressure of 90 pounds.

KANSAS

The Hays & Reynolds No. 1 Roll in Section 7-26-1e, Sedgwick County has a hole full of oil in the Wright horizon. and will make a well. The depth of the sand was 3,392-98 feet, and while this was lower than was expected, the well probably will be a good producer when put on the pump. An important failure for this area was the Simmons-Canary test, in Section 9-26-1e. This well found a hole full of water in sand at 3,455-64 feet.

The Marland Production Co.'s No. 1 Goodrich, in the north end of the Sedgwick County play, was put on the pump and produced 1,500 bbls. of oil the first day which was cut 5 per cent. This well is in Section 16-25-1e.

NEW MEXICO

DENVER, Colo., Feb. 5.—The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE Section 26-25-36, Lea County, New Mexico, was deepened from 3,302 to 3,331 feet and on January 31 it flowed by heads making 180 bbls. in five hours, after which it was shut in. On February 2 the well flowed at the rate of 85 bbls. per hour until all tankage had been filled. It was then shut in until storage could be erected. This well is on the west side of the Jal district, 10 miles north of the Gibson & Johnson No. 1 Leek well in Winkler County, Texas, and 5½ miles north and 1½ miles west of Marland's No. 1 Eaves, a gasser, and northwest of

(Continued on Page 133)

New Fry Sand Pool in Coleman County

New Producer Estimated at 300 Bbls. 44.1 Gravity. Two Offsets Made. North Texas Production Shows Decline

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 4.—Opening of another new Fry sand pool in Coleman County was one of the outstanding developments in North Texas as daily average production fell off 1,221 bbls. due to cold weather and natural decline of old wells.

McDonald, Campbell and Herbert's No. 1 Weaver, in the SW part of Section 11, Andrew Gabel Survey No. 271, Abstract 226, Coleman County, apparently has opened another Fry sand pool. The well tested 75 bbls. in seven hours at 1,823½-26½ feet (steel line measurement) and was estimated a 200-bbl. well at that depth.

Early Monday it was reported to have been deepened 3 feet and the increase in production revised the estimates upward to 300 bbls. daily. The oil tested 44.1 gravity. Two offsets have been made and it is likely two more will be made within a couple of days.

Broderick and Calvert blocked the Weaver ranch about four years ago and at that time had around 4,400 acres under lease. Since that time they have turned about half of the acreage in getting development in that area. At the present they hold the largest spread in the immediate vicinity and only a few other operators have any close-in acreage.

Some time ago James B. Douglas completed a test around 1,890 feet in the SW cor. of Subdivision No. 10 for a 7-bbl. well. Later he drilled a mile to the east and completed the test as a 5,000,000-foot gas well at around 1,807 feet. The discovery well was drilled half way between the two tests. A map showing the subdivision of the acreage is published in this issue.

Aside from the completion of that well the Ranger district was more or less quiet throughout the week. It was the only district in North Texas to register a gain in daily average production. Increases in Coleman and Stephens Counties and Ranger sent the daily average upward 1,353 bbls.

Biltmore Oil Co.'s deep test in Palo Pinto County in the SW cor. of Block 1,745, 3 miles northwest of Garford, got a show of wet gas at 4,034 feet the middle of last week and since then the gas has increased to around 1,000,000 feet. Operations have been shut down to run 6-inch casing.

The greatest activity in the Wichita Falls district is around Iowa Park in Wichita County. Several good wells are completed in that area each week, but the development has been rapid and the areas are being rapidly defined.

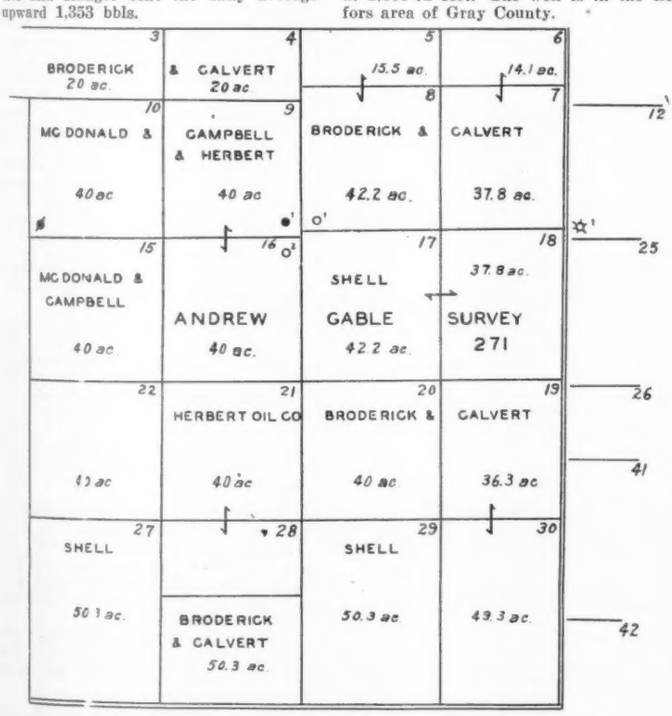
Wilbarger County, only a few weeks ago the leading producing county in the district and leading in activity, is in a slump. Most of the inside development on proven leases has been completed and wildcatting in that county is at a low ebb. However, quite an extensive wildcatting campaign is expected to be carried on in the county upon maturity of plans of several operators.

Eastern Oil Co.'s No. 1 Waggoner-C, Section 25, Block 4, H.&T.C. Survey, in semiwildcat territory west of the Grayback Pool and southeast of the Rock Crossing Pool, is proving up considerable more territory for development in the southeastern part of the county. The well is estimated good for around 250 bbls. at 1,919 feet.

Production of the district fell off 594 bbls. in daily average when every county save Wichita reported declines. The latter county made its gains from the flush being brought in around Iowa Park. The other counties declined when new production failed to offset the losses of old wells.

Panhandle Completions

An unusual number of completions for the Panhandle at this stage of its life were reported, but only one well out of the lot made better than 500 bbls. That was The Texas Company's No. 9 Saunders, which flowed 542 bbls. from pay at 2,668-72 feet. The well is in the Lefors area of Gray County.



Subdivision plat of development and ownership around new Fry Sand Pool in Coleman County, Texas.

Panhandle production declined 1,980 bbls., due to the encroachment of water in two areas, natural decline and cold weather.

Carson County showed a slight increase due to new production on the Shaffer ranch, but the cold wave pulled Hutchinson County's average down 610 bbls. Gray County declined as a result of the encroachment of water in two new producers that had sent production of the county upward. Water encroachment and the settling of flush production brought Moore County's production down 935 bbls.

NORTH TEXAS

Estimated Daily Average Production Week Ending February 2

Panhandle District	
Carson County	5,990
Gray County	23,280
Hutchinson County	26,645
Moore County	2,445
Potter County	20
Wheeler County	705
Total this week	59,085
Total last week	61,065
Decrease	1,980
Wichita Falls District	
Archer County	17,555
Baylor County	77
Clay County	448
Cooke County	2,457
Jack County	1,671
Montague County	7,221
Throckmorton County	669
Wilbarger County	27,520
Young County	7,615
Wichita County	28,916
Total this week	94,149
Total last week	94,743
Decrease	594
Ranger District	
Brown County	9,190
Callahan County	3,569
Coleman County	3,722
Comanche County	1,196
Palo Pinto County	383
Ranger	6,003
Shackelford County	11,632
Stephens County	7,083
Total this week	42,772
Total last week	41,419
Increase	1,353
Grand total this week	196,006
Grand total last week	197,227
Decrease	1,221

WICHITA DISTRICT COMPLETIONS

Archer County

Archer Drilling Co.'s No. 1 Roberts and others was dry and abandoned at 1,603 feet. T. F. Hunter's No. 1 Hasson was dry and abandoned at 1,637 feet. C. W. Clark and The Texas Company's No. 1 Watts was dry and abandoned at 1,452 feet. County Line Oil Co.'s No. 1 Cernosek was dry and abandoned at 1,441 feet. Donoho and others' No. 4 Andrews was junked at 490 feet and skidded derrick 12 feet north for No. 4-A. Gose & Waggoner's No. 1 Inman was dry and abandoned at 725 feet. Grebin and others' No. 2 Hennig made 63 bbls. at 1,426-37 feet and was drilled to a total depth of 1,439 feet.

Montague County

Pure Oil Co.'s No. 7 Maddox-D made 40 bbls. at 831-48 feet.

Cooke County

Bridwell Oil Co.'s No. 2 Dennis was dry and abandoned at 1,600 feet. W. L. Griffin's No. 2 Wheelock was dry and abandoned at 1,860 feet.

Jack County

Panhandle Refining Co.'s No. 2 Daugherty made 104 bbls. at 2,965-80 feet.

Wichita County

John W. Caldwell's No. 8 Allen & Kemp made 7 bbls. at 212-21 feet. His No. 9 Allen & Kemp was dry and aban-

(Continued on Page 134)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week ended February 2

Company, well, farm, name, section and block—	Remarks—
CARSON COUNTY	
Denson et als' No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W½ NW, Sec. 184, Blk. 2, I.&G.N. Sur.	Drlg. 1,400 ft.
Delmar Oil Co.'s No. 3 Noel, 330 ft. from E line and 990 ft. from N line W½ SE, Sec. 198, Blk. 3	Fishing 800 ft.
Holmes et als' No. 1 Quinn, 330 ft. from S and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur.	Drlg. 1,300 ft.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft W of NE cor. Sec. 79, Blk. 4, I.&G.N.R.R. Sur.	Location.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. of SW of NE Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	Location.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44.	Drlg. 1,150 ft.
Navajo Oil Co.'s No. 2 Poling, 660 ft. from W and 330 ft. from N lines, N 30 ac. SW, Sec. 22, Blk. X-2, T.T.R.R. Sur.	T. D. 3,870 ft., 1,800 ft. water 3,869-70 ft.; P.B. to 3,265 ft.
Reynolds et als' No. 1 E. Cooper, 330 ft. from S line and 330 ft. from E line NW, Sec. 5, Blk. 9, I.&G.N.R.R. Sur.	Drlg. 2,245 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. 2,400 ft.
Skelly Oil Co.'s No. 10 Schaffer, 1,320 ft. from W line and 330 ft. from S line of N½, Sec. 188, Blk. 3, I.&G.N.R.R. Sur.	Swabbed 60 bbls. 14 hrs. at 3,200-05 ft.; T.D. 3,247 ft.
Skelly Oil Co.'s No. 11 Schaffer, 330 ft. from S line 990 ft. from W line, Sec. 88, Blk. 4, I.&G.N. R.R. Sur.	Set 10-in. 1,040 ft.
Skelly Oil Co.'s No. 12 Schaffer, 330 ft. from S line and 1,650 ft. from W line of Sec. 88, Blk. 4, I.&G.N.R.R. Sur.	Rig.
Travis et als' No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Fish. 2,510 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	S.D. 3,500 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.
CHILDRESS COUNTY	
C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	S.D. 4,312 ft.
The Texas Co.'s No. 1 Smith, 100 ft. each way from NW cor. Sec. 174, Blk. H, W.&N.W. Sur.	Hole full sulphur wtr. 3,985 ft.; S.D. 4,605 ft.
COCHRAN COUNTY	
V. T. Bolin et al's No. 1 C. C. Slaughter, 1,650 ft. E and 660 ft. S of NW tract, League 118, Knox County School land	Rig and S.D.
COTTLE COUNTY	
Explin. Co.'s No. 1 Richards	Drlg. 2,385 ft.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur.	Drlg. 3,120 ft.
Skelly Oil Co.'s No. 1 J. H. Cannon	H.F.W. 3,558 ft.; S.D. 4,170 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Block H, W.&N.W. Sur.	Fishing 3,440 ft.
DONLEY COUNTY	
Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur.	Location.

(Continued on Page 64)

Good Well on East Side of Hendricks

Light Showing in Irion County Well. World's Deepest Producer Increases Output. Wildcat Has Show

By James H. Dameron
Staff Correspondent, West Texas Fields

FORT WORTH, Tex., Feb. 4.—Another good east side well in Hendricks, a few developments in the Roberts-Settles area and a couple of wildcats kept West Texas from going through a dull week in field developments while a decrease in runs to storage relieved the tension of many because too much oil was going to storage in the Permian Basin. Approximately 80,000 bbls. daily went to storage for the week ending January 17, but this figure was reduced to 53,000 for the following week. While there is no shortage of storage generally a few companies are considering leasing some room available and not needed by other operators at this time. On January 20 reports show only 480,000 bbls. being built. Of this amount 160,000 bbls. was being built in Pecos County and the remaining 320,000 was being put up in Upton.

The stocks for that period totaled 37,222,000 bbls. leaving room for 13,908,000 bbls. Humble Pipe Line Co. is reported considering the leasing of a few tanks in the McCamey district. Humble company recently sent out inquiries for a big order of tanks.

Despite the increase in production for the week ending January 24 runs to storage decreased approximately 26,000 bbls. daily in comparison with the previous week's report. This was due to an increase in pipe line movements, tank car shipments and runs to West Texas refineries. The following is a summary table of disposition of crude in West Texas:

	Jan. 17	Jan. 24
Daily pipe line runs	225,039	247,125
Tank car shipments	30,109	34,393
Runs to refineries	26,447	30,672
Daily disposition	281,595	312,190
Daily production	361,299	365,296
Runs to storage	79,704	53,106

Gulf Line to Hendricks

Ever since the discovery of Hendricks rumors have been afloat that the Gulf Pipe Line Co. would build a line to the pool. A survey is being made from Midland to Monahans and, according to announcements made by the Gulf company, the line will be an 8-inch from the tank farm in Section 32, Block B-5, to Monahans and a 10-inch from Monahans to Midland.

Gulf company has a line running north from Pecos to Midland, where it swings east to Ranger and ties into the main line coastal system. At the Midland farm Gulf company has around 700,000 bbls. of storage capacity and about 215,000 bbls. in storage. The company's Hendricks Pool production is around 16,700 bbls. from a potential of more than 330,000 bbls. Humble Pipe Line Co. is running around 10,000 bbls. daily of this and will continue under this contract until completion of the new line.

By early summer the outlet of West Texas will have a big increase with the completion of the Shell Pipe Line Corp. and Texas Pipe Line Co. lines to the coast. More than 300 miles has been completed on the former project and the latter is making rapid progress. Shell corporation line is a 10-inch carrier and will have a capacity ranging between 40,000 and 45,000 bbls. daily. The Texas Company's line is being built with 12-inch pipe and it will have a daily capacity ranging between 50,000 and 75,000 bbls. daily.

Lea County Line

Lea County, New Mexico, developments during the past week have revived reports of Texas lines being extended into that territory. Humble company is reported considering extending its 8-inch line from the Leck area on the north 10 miles to connect with the Skelly Oil Co.'s No. 1 Joyner. Nothing definite, however, has been decided by the company. The Texas Pipe Line Co., in originally making its plans for a West Texas system, contemplated reaching into New Mexico when production warranted it.

An outlet for the Pecos Valley Pool in Pecos County, north of Fort Stockton, has been completed and a contract calling for up to 5,000 bbls. daily delivery has been made. Thomas and Brant have completed a 2-inch line to the Orient Railroad at Grant, where a rack is being built.

A contract has been made with the San Angelo Refining Co. for the delivery in tank cars of not less than 75 bbls. daily and not more than 5,000 bbls. of crude to be purchased on a basis of 80 cents per barrel at the well. The pool has only one well at present, but more wells are being put down. The oil is sweet crude testing 36 gravity.

About 2½ miles south of the discovery well in this pool Talbot and Dittman and Atlantic company's No. 1 Unsicker, Section 25, Block 10, H.&G.N. Survey, had a showing of oil and gas at 1,355-65 feet. The discovery well had its 125-bbl. pay at 1,626-28 feet. Pecos Valley Co.'s No. 2 fee, Section 221, Block 10, northwest of the discovery well, topped salt at 1,107 feet Monday.

Settles Area

In the Settles area of southern Howard County, Plymouth Oil Co.'s mile southwestern extensioner in the SW of Section 5, Block 32, T-2-S, was deepened 1 foot to a total depth of 2,297 feet without increasing the oil. It is now shut down while a pumping unit is being installed so a proration test can be made.

In the northwest corner of the Settles C lease in Section 6, Block 32, American Maracaibo Co.'s No. 3 had 1,500 feet of oil from pay at 2,223-53 feet. The well will be given a shot early this week. The same company's deep test in that area which chilled the hopes of 3,000-foot-zone production in the Settles area is drilling ahead at 3,182 feet in lime with no oil showing. The well is No. 2 Settles-C.

A good east side well for the Hendricks Pool was brought in Monday when American Maracaibo company's No. 1 Hendricks-B, SE NW SW Section 28, Block B-5, was estimated good for 3,000 bbls. daily at 2,695 to 2,930 feet. It has been pinched down to its allowed production of 110 bbls. daily.

Hendricks Potential

Potential production of the Hendricks Pool showed another slight decrease when the new proration report was issued by the umpire, Reed Alsabrook. The 507 producing wells listed had a potential of 2,607,181 bbls., a decrease of 9,142 bbls., in comparison with the previous report. Pressures in wells over the field are still holding up remarkably well and some leases have better pressures than was expected. The following is a table of potential production gauges by companies.

WINKLER COUNTY ALLOWABLE PRODUCTION BY COMPANIES
Effective February 1 to 15, 1929

Company—	Wells	Units	Potential Prod.	Allowed Prod.
Amerada Pet. Corp.	4	3	12,332	1,598
Amer. Maracaibo. .	1	½	177	203
Atlantic O. P. Co..	33	13	201,032	27,704
Atlantic, Kesslar, Logan	2	1	5,875	502
Atlantic & Collett.	13	4	94,748	4,086
Bankers Prod. Corp	1	⅛	1,840	78
Cranfill & Reynolds	7	2	11,043	989
California Co.	8	2	17,146	1,364
Culberson Bros.	1	¼	844	127
Eastland Oil Co.	3	2	2,502	839
Gulf Prod. Co.	32	14	332,038	16,659
Humble O. P. Co. .	37	16	153,391	11,452
Independent O. P. .	17	8½	33,756	4,088
Mariand Oil Co.	8	4	25,113	2,410
Mining & Engin'ng.	1	1¼	1,651	108
Magnolia Pet. Co.	8	3	5,399	1,363
Murchison & Cranfill	8	2¼	10,374	879
Murchison & Lee ..	1	½	2,992	208
Republic Prod. Co..	16	5½	82,360	3,775
Richardson & Kelsey	1	1	1,824	319
Prairie O. & G. Co..	10	5	115,118	5,670
Pure Oil Co.	38	12	340,638	14,629
Skelly Oil Co.	13	5	240,616	10,045
South. C. O. P. Co..	149	76⅞	475,396	43,912
Shell and Texas Co.	44	16	235,319	14,071
Shell Pet. Co.	37	16	179,143	12,318
Texon O. & L. Co. .	10	4	20,654	1,836
Wentz Oil Corp.	1	1	1,961	460
Winkler O. P. Co. .	1	⅛	103	92

ESTIMATED DAILY AVERAGE PRODUCTION WEST TEXAS
Week Ending February 2, 1929

County—	Wells	Prod.
Crane County	274	36,436
Crockett County	47	2,521
Ector County	2	8
Fisher County	7	835
Glasscock County	18	1,042
Howard County	241	38,306
Jones County	65	7,010
Loving County	8	413
Mitchell County	142	2,851
Pecos County	287	74,029
Reagan County	240	19,188
Runnels County	3	145
Scurry County	5	31
Upton County	261	13,030
Ward County	1	96
Winkler County	527	177,251
Total this week	2,128	373,139
Total last week	2,113	371,040
Difference	15	2,159

Irion and Big Lake

Kingwood Oil Co.'s No. 1 Suggs, Section 19, Block 1, H.&T.C. Survey, Irion County, the deepest drilling well in West Texas, is the source of much interest. Early in the week the well had a showing of green oil at 5,480-83 feet in brown lime. The show was only light and was passed up and the well is drilling in lime and shale at 5,615 feet. This test in all probability will be carried on down to the deep zone discovered by the Texon company well in the Big Lake Pool.

That well continues to increase its production and for the 24 hours ending Saturday morning the well made 1,805 bbls. of oil and 18,200,000 feet of gas. Sunday the production was down to 1,780 bbls., but Monday it started climbing upward by going to 1,785 bbls. along with an increase in gas flow to 18,500,000 feet.

The Big Lake Oil Co. has started deepening No. 131 University and it is drilling at 3,370 feet. This well was completed in January, 1928, as a 270-bbl. well at 2,898 to 2,909 feet.

The Big Lake Co. abandoned the location for No. 3-C University, which was made for a deep test and changed the location of two other deep well locations. Two wells were completed in Big Lake last week and a group of locations were made for another group of wells.

Two deals of importance affecting West Texas properties were completed last week. The largest was the sale of 950,000 shares of the Westbrook-Thompson Holding Corp. to a group of eastern capitalists through Howard F. Brecht of New York. Westbrook and Thompson were the discoveries of the Hendricks Pool in Winkler County and had extensive holdings in the field that were owned jointly with the Southern Crude Oil Purchasing Co.

The other sale was the Red Bank Oil Co.'s property in the Yates Pool to the Simms Oil Co. for a consideration reported to be around $350,000. The lease is in Section 24, Block 194 and has five producing wells on it with a potential production of 5,000 bbls. The deal was closed Saturday, but Simms company will be credited with all production from the lease since January 12.

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended February 2

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Hole full water 1,390 ft.; underreaming 10-in. casing; top salt 1,890 ft.; shut down 1,990 ft.; repairing engine.
BORDEN COUNTY	
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
E. W. Bateman et al's No. 1 Nevill, 2,000 ft. from S line and 1,000 ft. from W line of Sec. 64, Blk. 13, G.H.& S.A.R.R. Sur.	Drlg. 1,400 ft.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 4, Blk. G-15, G.C.&S.F.	Rigged up and shut down.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,145 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 1,150 ft.
Johnson & Weekly's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Location.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,062 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 515 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Drlg. 1,540 ft.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 8, Blk. W, T.&P. Sur.	Location.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,860 ft.
Louisiana O. & R. Co.'s No. 1 Powers, 745 ft. S and 2,310 ft. E of NW cor. Sec. 156, Blk. 2	Hole full water 2,980 ft.; underreaming casing 3,373 ft.; drlg. 3,748 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Didn't run 6-in. casing; underreaming 8¼-in. at 3,033 ft.
CONCHO COUNTY	
Duffey & Silk.'s No. 1 Hill, 150 ft. N and E of SW cor. Sec. 8, Blk. 70, H.&T.C.	Shut down 1,300 ft.
Duffey & Silk's No. 1 Noyes, C SE Sec. 19, Blk. 70, H.&T.C. Sur.	Show oil and water 1,635-38 ft.; drlg. ahead.

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WEST TEXAS COMPLETIONS

Culberson County

Deep Rock Oil Co.'s No. 2 Seay, 200 feet north and 250 feet east of S line, Section 20, Block 59, T.&P.R.R. Survey, was dry and abandoned at 1,850 feet.

Loving County

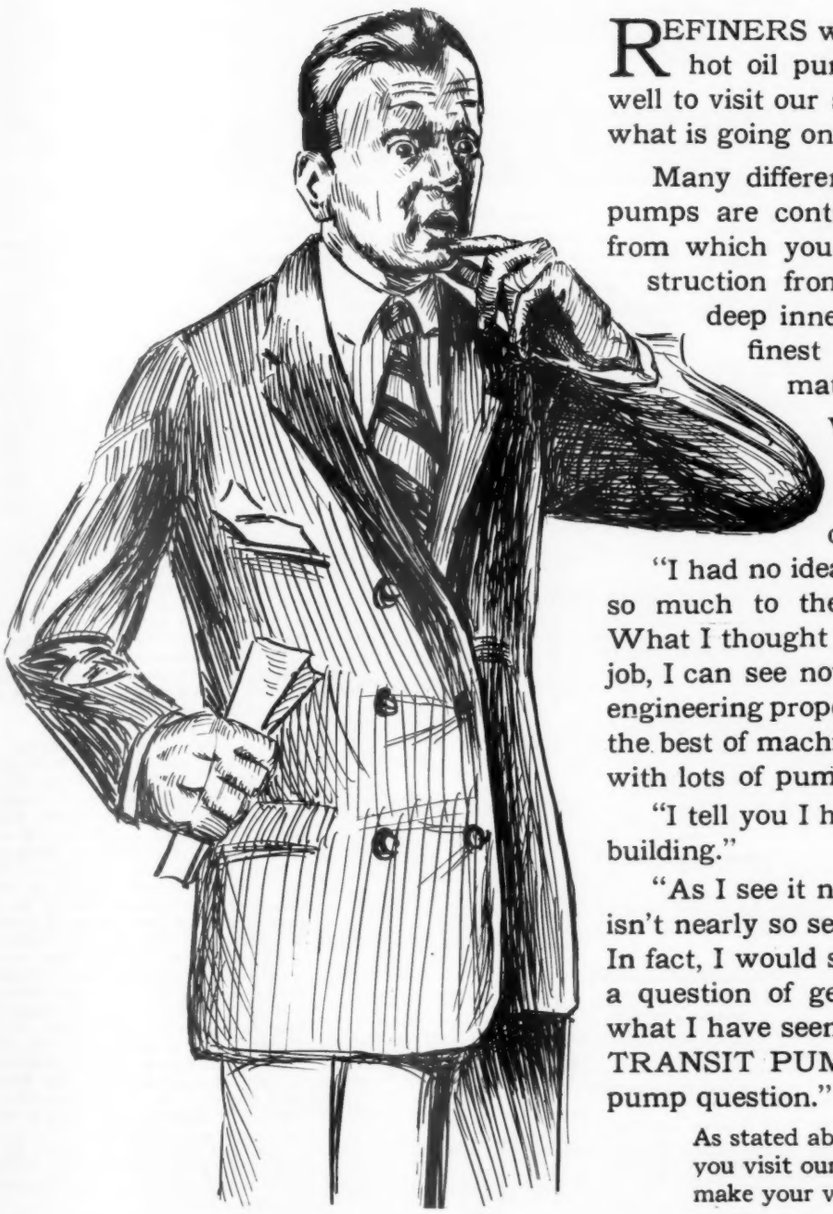
Lockhart & Co.'s No. 1 Wheat was shot with 430 quarts at 4,270-72 feet and flowed and swabbed 50 bbls. in 12 hours.

Reeves County

D. P. Davis and others' No. 1 Kinney and others, 300 feet south and 200 feet

(Continued on Page 134)

"I Had No Idea"



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"I tell you I have had my eyes opened, on pump building."

"As I see it now, the selection of hot oil pumps isn't nearly so serious as many refiners think it is. In fact, I would say it is quite simple. It is merely a question of getting the right pumps, and from what I have seen in the last two days, I believe that TRANSIT PUMPS are the answer to the hot oil pump question."

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Oklahoma Production Still Advancing

Possibility of Some Wilcox Production in Maud-Mission Region Improved. Crude Market Putting 50,000 Bbls. Daily Into Storage Now

By J. L. Dwyer

It was a quiet week so far as field activity was concerned last week, but in spite of this, the daily average production of Oklahoma made another notch on the gain which was temporarily arrested last week. The State is now making an average of 728,000 bbls. daily, and it seems destined to be making 775,000 bbls. within 45 days unless some measures of conservation are adopted to check the advance.

The crude situation is not too shaky in spite of this condition, and 50,000 bbls. daily are going to storage in the Oklahoma-Kansas region. This amount of oil is not top-heavy at this period of the year, but the threat of additional production in Oklahoma, principally from the Maud-Mission area, and the heavy production of California oils with the attendant danger of a large water movement around through the Panama Canal are factors which influence a note of caution in the Oklahoma-Kansas crude situation.

In the fields it was difficult to pick out the most important developments of the week. The St. Louis region was rather quiet with a slight decrease in its weekly average. There were no new wells of importance in that territory last week, but the Magnolia Petroleum Co.'s No. 4 Cherry A, in Section 26-7-4, has 1,500 feet of oil in the hole from the Simpson sand found 4,090-4,100 feet. This throws the Simpson formation considerably higher in this well than some of the surrounding operations, and offers the possibility of production being found in the Wilcox. The north end of the St. Louis Wilcox region offers little. T. B. Slick and the Maud Oil & Gas Co.'s No. 2 Davis, SW cor. NW NE Section 19-7-5, was placed on the air lift this week, and produced 4,870 bbls. per day. It is increasing in the amount of cut since being put on air, and at last reports was cutting 22 per cent at the well and settling out to 16 per cent in the tank.

The Tidal Oil Co.'s No. 1 Smith, NE cor. NW SE Section 26-7-4, is drilling at 4,415 feet in the Simpson sand, which was topped at 4,287 feet. This well has 3,000 feet of water in the hole and the chances for Wilcox production are not very good on this account, as water in the Simpson in this region has always been followed by water in the Wilcox sand.

North of the St. Louis region, the Magnolia Petroleum Co. abandoned No. 1 Carrol in Section 1-7-5. This well was running very low, and found the Woodford formation at 4,665 feet. The owners decided that this depth precluded the possibility of any production in the Wilcox and the well was abandoned in the Woodford.

Pipe Line Situation in St. Louis

The pipe line situation in St. Louis shows slight change, and keeps about even with the daily production. The daily average pipe line runs for the week ending Saturday, February 2, follow:

	Bbls.
Consolidated	2,188
Gulf	8,865
Independent	12,790
Magnolia	27,194
Oklahoma	10,550
Prairie Pipe	30,771
Shell	3,450
Sinclair	21,963
Texas	7,665
Tidal	2,336
Total	127,772

The first interesting news from the Searight Pool in some time was made possible last week when the Magnolia Petroleum Co.'s No. 1 Nevins, NE cor. SW SE, Section 32-10-6, found the Wilcox sand 4,356-68 feet and swabbed 550 bbls. It was shot with 10 quarts and then produced 920 bbls. on the swab. It provides a slight northeast extension, and will very likely cause about 8 or possibly 10 wells to be started in this region.

There is one community well being drilled in the north end of the old Seminole Field. It is the Carter Oil Co.'s No. 1 Strothers in Section 11-9-6. This well found the Hunton lime at 4,160 feet, and is drilling in that formation at 4,320 feet. The well is flowing 175 bbls. daily, and seems to have a fair chance of finding the Wilcox productive. The expense of this well is being shared jointly by the owners of adjoining acreage, and incidentally it is the first well of this type in the region to find production. The well has already established production in the Hunton, but owing to the fact that most of the adjacent acreage is in the hands of the larger companies, it is likely that a deferred drilling activity will result.

South End, Little River

In the south end of the Little River Field, where the prospects of obtaining good production in the more shallow sands loomed important, work has been slowed up by the finding of good wells in the Gilcrease sand. The first shallow well in this area was T. B. Slick, Inc.'s No. 1 Wood, NE cor. SW, Section 26-7-6. This well had production in the Cromwell sand, and the most recent development is the Barnsdall Oil Co.'s No. 1 Barkus, SW cor. NE, Section 26-7-6, a diagonal offset. The Barnsdall well found 70,000,000 feet of gas in the Gilcrease sand 3,146-58 feet. The Gilcrease being above the Cromwell the well will probably be utilized as a gas well. There has not been a good well completed to the Cromwell sand since the Slick well.

In the Mission Pool, the position of the formations found give reason to the thought that possibly some Wilcox sand production will carry a southwest trend from the discovery well. It now seems possible that some of the wells drilling over towards Section 12-8-5 will find the Wilcox in a good high position, with the probability of establishing good production.

Maud Area

On the west side of the Maud area, the drilling activity seems to be establishing another high for the Wilcox horizon. There seem to be two spots which have excellent chances for Wilcox production, one around Section 7-8-5, and the other in Section 18-8-5, just south of the first region. While the logs of the wells drilled in these localities do not influence the thought that the Wilcox will cover a very large area in this region, two small pools could make ample contributions to the steadily increasing output of this region.

Seminole Runs

The pipe line situation at Seminole is steady with few changes. The daily average runs for the week ending Saturday, February 2, follows:

Barnsdall	6,339
Champlin	7,113
Continental	1,086
Consolidated	329
Mid-Continent Pet.	9,249
Empire	3,648
Gulf	29,210
Magnolia	20,246
Oklahoma	47,860
Prairie Pipe	68,992
Pure	4,605
Shaffer	4,919
Shell	10,002
Sinclair	28,112
Texas	17,156
Tidal	15,871
White Oak	2,220
Total barrels	282,850

The daily average tank car shipments for the same period were:

Amerada	2,620
Carter	6,524
Pure	4,936
Total barrels	14,080

The stocks of crude oil in the Greater Seminole area show a steady decrease. The stocks as of January 15 follow:

Amerada	796,450
Barnsdall	436,814
Champlin	13,416
J. A. Hull Co.	208,139
Carter	1,372,416
Continental	718,211
Mid-Continent Pet.	242,809
Phillips Pet.	393,217
Pure	1,116,346
Prairie Oil & Gas	1,362,418
Prairie & L. T. L.	2,782,426
Shaffer	142,617
Superior (sold)	19,500
Twin State	66,187
Texas	983,141
Tidal	491,314
Turman	526,495
Total	11,281,916

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

Company, farm and location—	Remarks:
LATTIMER COUNTY	
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18	1,000,000 ft. gas 2,518-20 ft; U.R. csg.
GRANT COUNTY	
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Sand 2,435-50 ft; hole full wtr.
HARPER COUNTY	
Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w	Shut down 4,130 ft.
KAY COUNTY	
Wentz Oil Corp.'s No. 1-A Ward, C NW SE SW Sec. 32-27-1e	Drlg. 1,330 ft.
WOODWARD COUNTY	
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w	Rig blown down 3,025 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w	Drlg. 2,150 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w	Cleaning out 1,910 ft.
Farrond and others' No. 1 Johnson, SW cor. SW Sec. 1-23-17w	Underreaming 1,560 ft.
Wilson et als' No. 1 Unknown, NE cor. SW Sec. 4-23-16w	Rig.
GARFIELD COUNTY	
E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 4,755 ft.
NOBLE COUNTY	
Alco Royalty Co.'s No. 1 Waltermire, SE cor. NW Sec. 33-21-1w	Drlg. 2,412 ft.
Marland Oil Co.'s No. 1 Kidd, NW cor. SW Sec. 32-20-1w	Shut down 5,290 ft.; plugging back to show oil 1,836 ft.
KINGFISHER COUNTY	
McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w	Drlg. 4,895 ft.
LOGAN COUNTY	
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w	U.R. 3,970 ft.
J. L. Donahoe's No. 2 fee, SW cor. NW SE Sec. 21-18-2w	Dry and abd. 6,022 ft.
BLAINE COUNTY	
Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
W. J. Donnelly, trustee's, No. 1 Dickens, NE cor. SE Sec. 26-15-12w	Drlg. 4,465 ft.
Ragland and others' No. 1 Unknown, C NW SW Sec. 13-19-10w	Rig.
LINCOLN COUNTY	
Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3	Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6	Rig.
Wheeler & Mote's No. 1 Kemmer, NW cor. NE SW Sec. 2-16-5	Drlg. 875 ft.
McLAIN COUNTY	
Empire Oil & Ref. Co.'s No. 1 Bonner, SE cor. NW NW Sec. 29-5-3	Drlg. 4,330 ft.
MUSKOGEE COUNTY	
Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17	Shut down 400 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18	Drlg. 2,320 ft.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20	Shut down 775 ft.
Colton & Lester's No. 1 Ellington, SW cor. NW SW Sec. 25-12-19	Location.
Colton & Lester's No. 1 Parker, C NW SW Sec. 31-12-19	Spudded.

(Continued on Page 83)

Beckham County

E. L. Martin made location for No. 1 Porch, NW cor. Section 27-9-23w.

Carter County

E. M. Boring and others' No. 5 Walker, SE cor. NW SE NW, Section 10-4s-2w, has been abandoned at 3,145 feet.

Comanche County

Magnolia Petroleum Co.'s No. 5 Price, NE cor. SE SW NE, Section 20-2-9w, is dry and abandoned at 2,655 feet.

Creek County

Silurian Oil Co. has built the rig for No. 27 Starr, SE cor. NW NE NE, Section 17-18-7. Wilcox Oil & Gas Co. is repairing the rig to deepen No. 8 Harjo, SW cor. SE SW, Section 36-16-8. Edgewood Oil Co.'s No. 5 Johnson, NW cor. SE SW, Section 17-14-10, is rigging up.

Dixie Oil Co.'s No. 5 Tohkaney, SE cor. SW SE, Section 7-19-9, has been completed for 2,000,000 feet of gas in sand at 2,084-99 feet. Baker & Lynch's No. 2 Grayson, CSL NE NW, Section 4-18-12, is making 3,000,000 feet of gas from sand at 2,043-56 feet. Magnolia Petroleum Co.'s No. 1 Derrisaw, SE cor. NW SW, Section 6-17-7, is pumping 15 bbls. from sand at 2,853-69 feet. C. G. Tibbens' No. 2 Unallotted, CEL NE NW, Section 9-14-10, made a 30-bbl. well in sand at 3,159-69 feet. The Prairie Oil & Gas Co.'s No. 7 Coachman, SE cor. NE NW, Section 20-17-7, made 50 bbls. from sand at 2,739-58 feet.

Oklahoma Gas Utilities Corp.'s No. 5 Sanford, NE cor. SW, Section 23-5-8w, made 26,000,000 feet of gas from sands at 1,938-2,300 feet.

Jefferson County

Amerada Petroleum Corp. and others' No. 1 Majors, SE cor. NW NW, Section 35-5s-7w, is digging slush pit.

Kay County

C. A. Leonard and others' No. 1-A Ballentine, SE cor. NE NW, Section 28-27-1, is location for a shallow gas test.

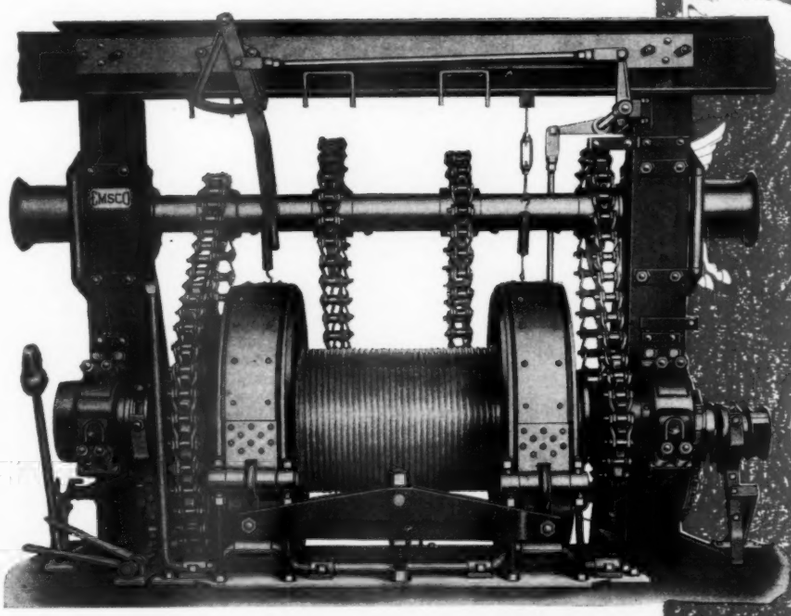
Lincoln County

Wilcox Oil & Gas Co.'s No. 2 Angee, SW cor. SE SW, Section 35-14-6, is dry and abandoned at 4,361 feet.

Kiowa County

Muth Brothers' No. 1 Terry, C SW SE, Section 6-6-18w, is cleaning out to deepen from 1,129 feet. Bridwell and others' No. 1 Ditmar, NE cor. NW NW

4 SPEED EMSCO DRAW WORKS



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SE, Section 18-6-16w, drilled to 690 feet and was plugged back to sand at 443-56 feet and is making 25 bbls.

Marshall County

Thompson and others' No. 1 Blaylock, SW cor. SE SW, Section 3-6s-6, has been abandoned at 830 feet.

Muskogee County

Brader and others' No. 1 Lovett, SW cor. NE, Section 20-15-15, is rigging up. Glasco and others' No. 1 Dean, SW cor. NE NW, Section 7-13-18, is cleaning out at 2,032 feet. Colton & Lester moved a machine to the location for No. 1 Parker, SW cor. NW SW, Section 25-12-19.

H. L. Jolly's No. 1 Durant, SE cor. SW SW NE, Section 30-15-15, is dry and abandoned at 2,121 feet. E. B. George's No. 1-A Flowers, CEL NE SW, Section 5-13-16, is dry and abandoned at 2,001 feet. J. N. Paschall's No. 1 Alcorn, SW cor. NE SW, Section 18-13-19, has been abandoned at 980 feet.

Okfuskee County

Tidal Oil Co. is erecting the rig for No. 1 W. Johnson, NW cor. SW, Section 29-12-9. Independent Oil & Gas Co. is running 6-inch casing at 2,902 feet to deepen No. 2 Jacobs, NW cor. SW NE, Section 22-12-11. J. J. Schock's No. 1-A Holmes, CEL SW NE, Section 29-11-11, is rigging up.

Tidal Oil Co. and others' No. 1 Barnett, SE cor. NE NE, Section 30-12-9, has been completed for 15,000,000 feet of gas in sand at 3,945-75 feet. Josey Oil Co.'s No. 18 McCoy, SW cor. SE NW, Section 33-12-11, is dry and abandoned at 3,738 feet.

Okmulgee County

C. V. Prince's No. 7 Adams, SE cor. SW NE, Section 12-14-14, drilled to 2,355 feet and is plugging back to a gas sand at 1,677 feet. J. E. Wallace's No. 12 D. Colbert, CNL NW SE, Section 14-14-14, is drilling at 200 feet. J. L. Selby's No. 11 H. Connor, NW cor. Section 6-14-15, is shut down at 640 feet. American Maracaibo Oil Co. has the rig on the ground for No. 1-A Henry, NE cor. NW SE, Section 27-12-12. Moffett and others' No. 6 Hawkins, C SE, Section 6-11-12, is rigging up to deepen.

J. E. Wallace's No. 5 Colbert, SE cor. SW SW NE, Section 14-14-14, was completed for 40 bbls. in sand at 1,698-1,742 feet. Moffett & Buckles' No. 2 Grayson, CNL NW SE, Section 16-11-12, was completed for 500,000 feet of gas in sand at 1,250-1,300 feet.

Pawnee County

Magnolia Petroleum Co. moved the rig out for No. 1 Embry, SE cor. NW, Section 26-20-6. Pure Oil Co. made location for No. 1 Loretta, NW cor. SE, Section 35-20-6.

Osage County

The Prairie Oil & Gas Co. has the cellar dug for No. 4, NE cor. SE SW, Section 30-25-8. Superior Oil Corp.'s No. 1, NW cor. NE, Section 30-29-8, is rigging up. The Texas Company's No. 1, SW cor. Section 29-28-11, is a machine. Minnehoma Oil Co. has the rig up for No. 4, NE cor. SW, Section 11-26-8. Indian Territory Illuminating Oil Co. is moving in a machine for No. 1, NE cor. SE, Section 26-26-8. Amerada Petroleum Corp. is moving rig material to the location for No. 2, SE cor. SW NE SW, Section 5-24-8. W. D. Gray and others' No. 4, SW cor. SE SE, Section 34-24-8, is a rig under construction. The cellar has been dug for No. 1, CNL NE, Section 3-23-8. Indian Territory Illuminating Oil Co.'s No. 404, NW cor. NE NE NE, Section 32-23-9, is spudding. Carl T. Matthews' No. 1, CNL S half N half NW, Section 34-23-9, is spudding. Mid-Kansas Oil Co. has a machine on the location for No. 4, NE cor. SE SW, Section 36-22-8.

Carter Oil Co.'s No. 1, NW cor. SW, Section 34-26-6, made 239 bbls. from Burbank sand at 2,872-2,902 feet. Phillips Petroleum Co.'s No. 17, NW cor. SW SE, Section 21-25-12, made 15 bbls. from Bartlesville sand at 1,561-1,717 feet. Marland Oil Co. and Gypsy Oil Co.'s No. 2, NE cor. SW NW, Section 22-24-7, was completed for 11,000,000 feet of gas after plugging back from 3,087 feet to sand at 2,504 feet. Silurian Oil Co.'s No. 53, SE cor. SW NE, Section 17-23-12, made a 10-bbl. well in sand at 1,489-1,544 feet. Pioneer Petroleum Co.'s No. 8-B, SW cor. NE SW, Section 5-20-11, was completed for 30 bbls. in Bartlesville sand at 1,734-44 feet. The Prairie Oil & Gas Co.'s No. 1, SE cor. NE, Section 21-25-6, has been completed for 35 bbls. in Burbank sand at 2,726-33 feet.

Payne County

T. J. Hughes' No. 2 Powers, NE cor. SW SW NW, Section 10-18-5, is rigging up. Skelly Oil Co.'s No. 1 Kaufman, NE cor. SE, Section 6-17-4, is dry and abandoned at 4,275 feet.

Stephens County

Harris & McNeil's No. 1 Pettigrew, SE cor. SW, Section 11-2-5w, is drilling at 1,018 feet. Bunn-Marvin Co.'s No. 2 Williamson, NE cor. SW SE, Section 12-1-6w, is shut down at 4 feet. Pelwin Oil Co. made location for No. 1 King, SW cor. SE, Section 22-3e-9w.

Wagoner County

McCracken and others moved a machine to the location for No. 5 Horner, NE cor. SW NE SW, Section 21-18-17. Horner and others' machine is on the location for No. 2 Kidd, SE cor. NW NW, Section 22-18-17. Public Service Corp.'s No. 1 Verner, NW cor. SE SE NE, Section 35-16-17, is spudding.

McCracken and others' No. 7 S. Childers, SW cor. NE SE NE, Section 21-18-17, was completed for 3,000,000 feet of gas in sand at 825-28 feet. Cody & Neely's No. 1 Rothammer, SE cor. Section 7-17-18, is dry and abandoned at 800 feet. Public Service Corp.'s No. 1 Brown, NW cor. SW, Section 36-16-17, was completed for 6,500,000 feet of gas in sand at 768-78 feet. C. F. Finefield's No. 5 Vann, NE cor. SE NW SW, Section 22-16-19, was completed for 13 bbls. in sand at 886-94 feet.

Pontotoc County

Texas Pacific Coal & Oil Co. made location for No. 4 Hutchins, NE cor. SW SE, Section 19-5-8, Allen Pool. Westheimer & Daube made location for No. 10 Wade, NW cor. SW SE, Section 19-5-8. Wilcox Oil & Gas Co. made location for No. 1 Haney, NW cor. SE NW, Section 23-4-7.

Louisiana Oil Refining Corp.'s No. 19 Perry, NW cor. NE, Section 19-5-8, swabbed 620 bbls. from sand at 2,495-2,658 feet. No. 20 Perry, SW cor. NW NE, Section 19-5-8, was completed for 1,100 bbls. in sand at 2,566-28 feet. Westheimer & Daube's No. 8 Wade, SE cor. NW SE, Section 19-5-8, swabbed 400 bbls. from sand at 2,708-72 feet. Denver Producers & Refiners Corp.'s No. 1 Warffle, NW cor. SE SE, Section 20-5-8, is dry and abandoned at 2,765 feet.

Hughes County

Independent Oil & Gas Co. has the rig up for No. 1 Jackson, C NW SE, Section 11-7-8.

Seminole County

Mid-Continent Petroleum Corp. made location for No. 4 Nevins, SW cor. SE SE, Section 32-10-6, Searight Pool. Gypsy Oil Co. is building the rig for No. 4 Mosar, SW cor. SE NE, Section 1-8-5, Mission Pool. Independent Oil & Gas Co. is erecting the rig for No. 6 Lawson, NW cor. NE SE, Section 1-8-5. Magnolia Petroleum Co. made location for No. 2 fee, NW cor. NE, Section 11-8-5. Marland Oil Co. is building the rig for No. 4 Maines, NW cor. SE SW, Section 7-8-6. Sinclair Oil & Gas Co. has the cellar dug for No. 4 Hardy, SW cor. NE SW, Section 7-8-6.

Pure Oil Co. has dug the cellar for No. 4 Brinson, NE cor. NW SW, Section 24-7-6, Little River Pool. T. B. Slick is building the rig for No. 1 Millsap, NW cor. Section 30-7-6. The rig is up for No. 1 Mulcussy, SW cor. SE NE, Section 4-7-7, East Little River. Mid-Continent Petroleum Corp. made location for No. 4 Smith, SE cor. NW NE, Section 5-7-7. Empire Oil & Refining Co. is building the rig for No. 1 Fish, SE cor. NE, Section 19-7-8. Magnolia Petroleum Co. made location for No. 1 Harjo, NE cor. SE, Section 34-6-7. Sunray Oil Co. and Cal Cul Oil Co. has the cellar dug for No. 2 Joanna, SW cor. NW SW, Section 24-5-7, West Allen Pool.

Mid-Continent Petroleum Corp. made location for No. 15 Fleet, NW cor. SW SE, Section 7-5-8, Allen Pool. No. 16 Fleet, NW cor. SE, Section 7-5-8, is also a location. Sinclair Oil & Gas Co. is

(Continued on Page 99)

WEATHER DELAYS COMPLETIONS IN SEDGWICK, KANSAS, AREA

By J. L. Dwyer

There were no new wells in the Sedgwick area last week. Poor weather conditions probably helped delay the completion of several wells in this territory which are nearing the sand. The output of the completed wells holds steady, and for the week ending Sunday, February 3, averaged as follows:

Gypsy, Marland and Bu-Vi-Bar's:	Bbls.
1 Wright	1,060
1 Lyons	1,497
2 Lyons	638
1 Lantz	712
Mary Jane Oil Co.'s:	
1 Fitch	962
Marland Production Co.'s:	
1 Goodrich	1,372
Aladdin-Slick et als':	
1 Smyser	593

The Marland Goodrich well will be put on the pump, according to the owners. The Mary Jane Oil Co.'s No. 1 Fitch is cutting 3 per cent, and the Goodrich well is cutting 5 per cent. The Aladdin-Slick well is showing the largest cut in the area, which is 10 per cent.

Running Lower

Simmons & Canary's No. 1 Hoover, SW cor. SE, Section 9-26-1e, looks better than it did last week. This well was reported running about 30 feet lower than the discovery well of the area, based on the top of the Mississippi lime, but the lime section seems to have been thin in the Simmons-Canary well, and on that account, the top of the pay may be found at a favorable position.

To the northeast of the discovery well, the Barnsdall Oil Co.'s No. 1 Samuels, NE cor. NW, Section 24-25-1e, which had the chat 3,064-67 feet and is now on the pump, will probably be completed in that horizon. It was first thought that the owners would drill the well down to the Wright pay. The Barnsdall well is now making 170 bbls. of oil and 60 bbls. of water daily, and estimates of its production when placed steadily on the pump, give it 100 bbls. daily.

A small showing of live oil was reported in the Watsonia Oil Co.'s No. 1 Merklein, Section 21-3-19w, Phillips County. The showing was encountered at 3,535 feet.

Butler County

Empire Oil & Refining Co. is building the rig for No. 6 Hutchinson "B," NE cor. NW NE, Section 27-27-5. The rig is going up for No. 7 Sherrock, SE cor. NE SW, Section 27-27-5. Empire Oil & Refining Co. is building the rig for No. 8 R. Sherrock, NW cor. SW SE, Section 27-27-5. No. 4 Brandenberger "A," SW cor. NE NE, Section 22-27-5, was completed for 100 bbls. in sand at 2,710-57 feet.

Coffee County

Union Gas Co. and others moved a machine to the location for No. 1 Read, SW cor. NW, Section 9-22-14.

Cowley County

Trees Oil Co. has the rig up for No. 1 Mauser, SW cor. NW NE, Section 12-32-6.

Ellis County

Phillips Petroleum Co.'s No. 1 Shutts, C NE, Section 5-12-17w, was completed for 300 bbls. in sand at 3,570-85 feet.

Elk County

S. H. Litteral's No. 1 Moline Townsite, Block 45, Lot 13, SW cor. SE SW, Section 10-31-10, made a 50-bbl. well in sand at 1,978-2,003 feet. Croft & Hunt's No. 1 Webb, NE cor. NW NW, Section 15-31-10, has been abandoned at 2,020 feet.

Greenwood County

Amerada Petroleum Corp. has the rig up for No. 6 Luthi, SW cor. NE SW, Section 29-22-13. Nelson Kimmet and others' No. 1 Claycomb, NE cor. Section 1-25-8, is dry and abandoned at 2,475 feet. W. H. Nelson and others' No. 1 Claycomb, SE cor. SW NW, Section 6-25-9, has been abandoned at 2,372 feet. The Prairie Oil & Gas Co.'s No. 3 Gaffney, NE cor. NW SE, Section 7-24-11, is dry and abandoned at 2,025 feet.

McPherson County

McPherson Oil & Gas Development Co.'s No. 1 Norling, C NE, Section 9-17-2w, is dry and abandoned at 3,597

(Continued on Page 111)

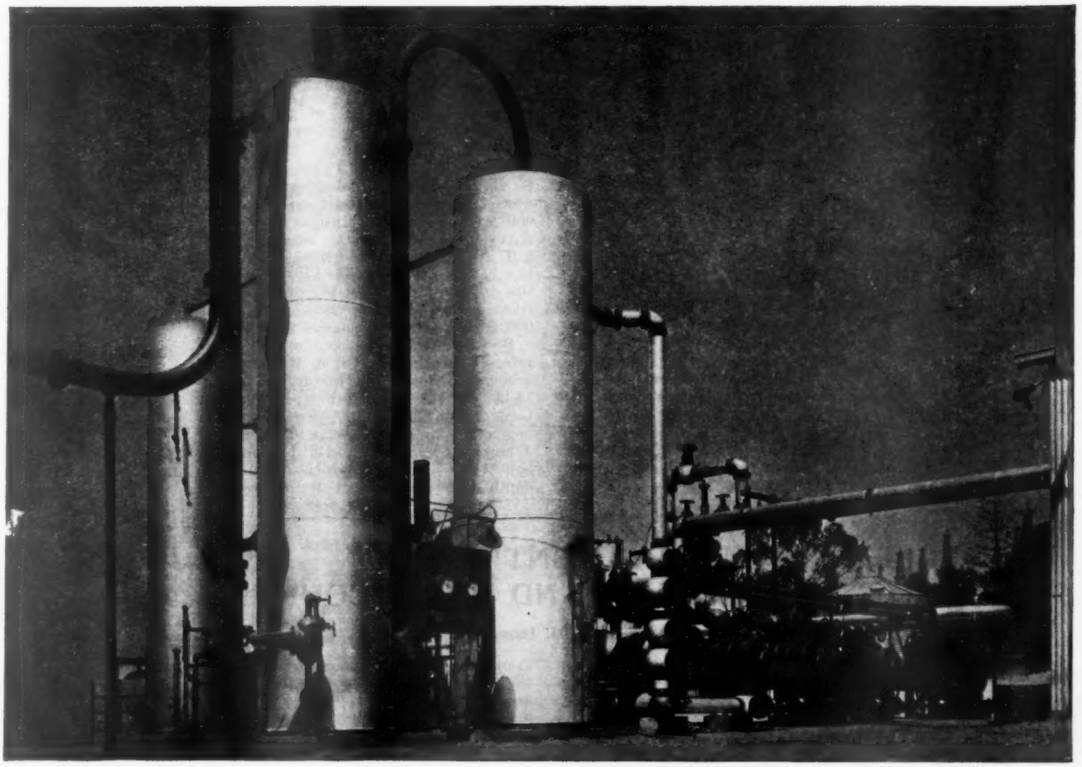
WILDCAT OPERATIONS IN KANSAS

Company, farm and location—	Remarks:
BARBER COUNTY	
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Rig.
Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w	2,000,000 ft. gas 4,755 ft.; fishing tools.
Barbara Oil Co.'s No. 1 Lytle, CNL NE NE, Sec. 12-33-13w	Drlg. 2,150 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Shut down 4,223 ft.
BARTON COUNTY	
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Mid-West Exploration Co.'s No. 1 Karst, SW cor. SW Sec. 11-16-15w	Drlg. 3,100 ft.
BUTLER COUNTY	
LaRobb et al's No. 1 Bronsenger, NE cor. SW Sec. 24-27-3	Rig.
Swartz et al's No. 2 Randall, NW cor. NE NW Sec. 22 24-4	Shut down 2,605 ft.
CHASE COUNTY	
Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7	Shut down 3,162 ft.
COWLEY COUNTY	
Roth & Faurot's No. 1 Ridding, SE cor. NW Sec. 31-32-6	Drlg. 2,715 ft.
Shell Pet. Corp.'s No. 1 Galley, NE cor. NW SW Sec. 18-35-3	Drlg. 2,235 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4	Drlg. 2,515 ft.
Empire-Marland-Twin States' No. 1 Feaster, NW cor. NE Sec. 36-32-5	Pump. 35 bbls. oil and 10 bbls. wtr. daily from 3,165 ft.
Crow & White's No. 1 Powers, C NW NE Sec. 9-32-5	Sand 714-734 ft.; 1,000,000 ft. gas.
J. B. Markey's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
Wakefield & Osborne's No. 1 Osborne, NW cor. NE Sec. 18-30-5	Rig.
ELLIS COUNTY	
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,100 ft.
Transcontinental Oil Co.'s No. 1 Boetcher, NW cor. SE SW Sec. 21-13-19w	Drlg. 3,862 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Labette Oil Co.'s No. 1 Urban, NE cor. NW NW Sec. 19-15-16w	H.F.W. 3,618 ft.
Atlantic Oil Prod. Co.-D. B. Mason's No. 1 Gorham estate, C SE SE Sec. 35-15-16w	S.D. 2,462 ft.
Derby Oil Co.-Empire Oil & Ref. Co.'s No. 1 Krause, NW cor. SW SW Sec. 17-14-19w	Cementing core 3,829 ft.
Phillips Pet. Co.'s No. 1 Bruil, C NW Sec. 34-14-17w	Drlg. 2,100 ft.
Moncrief et al's No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Rig.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,425 ft.
Empire Oil & Ref. Co.'s No. 1 Wann, NE cor. NE Sec. 31-12-19w	Underreaming 3,515 ft.
Marland Oil Co.'s No. 1 Vine, SW cor. SW SE Sec. 27-11-19w	Drlg. 3,825 ft.
Davis & Hazlett's No. 1 Wieland, NE cor. NE Sec. 1-13-16w	Drlg. 1,260 ft.

(Continued on Page 86)

BRAUN

DISTILLATION UNIT



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Gas Companies Active in Louisiana

Demand for This Fuel Results in Increased Development Work in Different Sections. Champagnolle Gas Belt Extended

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 4.—Fourteen new locations, two of them wildcats, south and east of production in the Richland Parish Field, coupled with the other new work undertaken in those areas lately appear to indicate a continued increasing activity in the northeast Louisiana gas district in order to meet the increasing demand for fuel created by recently completed pipe lines and to create a reserve for two more of large proportions soon to be begun. Three of the new locations are in Morehouse Parish, seven in Ouachita and two in Union Parish. Gas also was the source of the only other development of more than passing interest during the week, an extension of the Champagnolle gas belt on the south end of the main body of the field of about half a mile.

Morehouse Parish locations are J. S. Herkness' No. 5 Bowles, 760 feet north and 660 feet east SW cor., Section 17-20-5, and No. 6, 660 feet north and west of SE cor. of the same section. Natural Gas Producing Co. of Louisiana's No. 23 Crossett, 1,320 feet west and 2 feet north SE cor., Section 26-21-4. Those in Ouachita are Maury Drilling Co.'s No. 5 McEwen, 660 feet west and 3,300 feet north SE cor., Section 29-19-4; Ouachita Natural Gas Co.'s No. 1 Sandidge & Patton, 3,524 feet west and 58 feet south NE cor. NW NW, Section 15-20-4; Palmer Corp.'s No. 6 fee, 4,567 feet west and 3,300 feet south NE cor., Section 24-19-4; Peerless Carbon Co.'s No. 4 Moore, 907 feet west and 181 feet north common corner of Sections 26, 25, and 49-20-4 in Section 26; United Carbon Co.'s No. 1 Spade, 660 feet south and east C Section 32-19-4, and No. 2, 1,980 feet north and 660 feet east SW cor., same section; United Oil & Natural Gas Producing Co. of Louisiana's No. 2 Cole, 660 feet south and 594 feet east C Section 26-20-4.

Wildcat Locations

Richland Parish wildcats are M. L. Meredith, trustee's No. 1 Kate Humble, 680 feet east and 2,033 feet south NW cor., Section 35-16-6, and Richland Operating Co.'s No. 1 S. R. Humble, 1,980 feet east and south NW cor., Section 30-16-7. The former is 1½ miles south of the recent completions by Stovall Drilling Co. and the Moody Seagraves Co. which extended production 1½ miles east and the latter is 1½ miles southeast of the Moody-Seagraves well in the Taylor land in Section 26-16-6. Industrial Gas Co. made location for No. 1 Vester Cook, 660 feet north and east SW cor. NW, Section 12-20-3, Union Parish, and United Carbon Co. made location for No. 1 L. Reed heirs, 660 feet north and west SE cor. SW, Section 12-20-3.

The extension of the Champagnolle gas belt on the southern edge of the field was O. W. Estes' No. 1 Alice Gregory in the NE cor. SW SE, Section 15-17-14, which was completed with an estimated 35,000,000 feet of gas with a spray of oil from 10 feet of sand, total depth 2,852 feet. It is a half mile south of Magnolia Petroleum Co.'s No. 1 Alice Gregory, which also was a big gas well. Magnolia is preparing to deepen No. 2 on the same lease which was completed December 22 making 28,300,000 feet of gas from 2,822 feet. No. 3 Alice Gregory tested salt water at 2,625-37 feet and is coring.

Magnolia's No. 2 J. Sartor in Section 16-16-6, almost the heart of the Richland gas field, at 2,575 feet, was still a dry hole without a show of gas though it has gone 125 feet below the average depth of Richland producers. Four tests, all dry, have been made at 2,450, 2,520, 2,562 and 2,575 feet. The theory is that it has found a small patch of sand so dense and close packed that it is impervious such as the Dixie and one other well went into in the northern end and in the central part of the field.

H. L. Hunt will probably abandon No. 6 Gregory in the NE NW, Section 15-17-14, Champagnolle, failing to get production below 3,271-3,332 feet, where a drill stem test resulted in only a small show of oil. He had tested at 2,634-39 feet and got 1,500 feet of salt water in the upper lenses drilled to the standard depth and got a show of oil at 3,271-3,332 feet, and at a present total depth of 3,401 feet, the deepest in the main body of the field, will either abandon or plug back to retest between 3,271 and 3,332 feet. Contrast this with Pure Oil Co.'s No. 6 Gregory in the same section, one location east, which is waiting for standard rig to pump with 1,500 feet of oil standing in the hole from 5 feet of sand, total depth 3,261 feet. Oilwell Corp.'s No. 2-A Kelly, Section 9-17-14, tested dry at 3,305 feet and salt water at 3,394 after a salt water show at 2,891 feet and 40,000,000 feet of gas at 2,824 feet, cemented back from 3,394 to 2,824 feet where it could have been a big gasser and is standing 2,100 feet in fluid 10 per cent water.

Eastern Extension

In the eastern extension, Ohio Oil Co.'s No. 3 Carroll heirs in the SE cor. SE NW, Section 6-17-13, the north fringe of the extension, started flowing 110 bbls. clean oil from 4 feet of sand, total depth 2,995 feet, about as shallow as any of the extension wells have been completed though on a par with the depth of the discovery wells in Sections 1 and 2-17-14. Ohio also made location for No. 1 Adams in the NE cor. SW NW, Section 7-17-13, on the west edge of the extension. In Louisiana, the company is releasing most of its unproven acreage and appears to be devoting itself entirely to Arkansas so far as drilling activities in this division are concerned.

Bayou State Oil Co.'s No. 6 Land in the old Hosston district of Caddo, made a 7-bbl. pumper at 1,020 feet but Thomason and others' No. 7 Muslow in Section 31-21-15, Pine Island, was a dry hole at 2,230 feet. In DeSoto Parish Benedum & Trees Oil Co. abandoned No. 1 State, Section 22-14-12, at 3,000 feet after deepening from 2,633 feet where it blew 25,000,000 feet of gas from 9 feet of sand for two or three days and suddenly went dead.

D. Thomason's No. 12 Crenshaw in the B. C. Jordan Survey of Panola County, was completed as a small gasser, 4,000,000 feet in the deep stuff at 2,700 feet. Kirby-Rowe Drilling Co. completed No. 1 T. C. Adams in the Elisha Jones Survey before anyone knew he had a location. He set 6-inch at 972 feet and finished the well January 26 making 2,500,000 feet of gas, 380 pounds pressure.

Besides the Champagnolle completion referred to Humble Oil & Refining Co. brought in No. 2 J. Haynie, Section 6-14-20, Nevada County, pumped 20 bbls., total depth 1,150 feet. Smackover reported Phillips Petroleum Co.'s No. 7 Johnson, Section 34-15-15, pumping 80 bbls. from 37 feet of broken sand, total depth 1,980 feet. Root Refineries, Inc. abandoned locations for Nos. 2 and 3 M. Doss in the SE and SW cors. NW NE, Section 16-17-14, the former offsetting a gasser on the west and a dry hole on the north.

Sarepta-Cartersville

Taking the place of Cotton Valley, light oil runs when these were dropped from production figures when the three deep Trinity wells furnishing that oil stopped producing, Sarepta-Cartersville district of northeastern Bossier and northwestern Webster Parishes appear in the list for the first time with a daily average run of 200 bbls. It is the first time oil from this locality has appeared in production statistics or has had a separate classification, though oil has been produced in small quantities in the Sarepta division ever since Lloyd Harris completed No. 7 Pinewoods during the early days, or just preceding Cotton Valley, and Woodley & Collins completed No. 2 L. & A., Section 14-23-12, Cartersville, with 85 bbls. at 3,081 feet and Louisiana Oil Refining Corp.'s No. 1 Blanton in Section 23-23-12, came in with 1,000 bbls. from 3,096 feet during the first week of April, 1927.

There are at present five small producers scattered through the district on both sides the parish line, the oil being 26 gravity from the 2,600-foot horizon in Webster and 3,100 feet in Cartersville, bringing 78 cents and $1.38 per barrel, respectively. Magnolia Petroleum Co.'s wells on the N. Scroggins and Cook lands in the Sarepta district are running an average of 100 bbls. Ohio Oil Co.'s No. 1 Haynes is making about 70 bbls.; Palmer Corp.'s No. 1 Robison in Cartersville is doing about the same and Sales & Walkers' Cartersville well averages around 50 bbls. Oil is being taken for the most part by Louisiana Oil Refining Corp. through a 3-inch line from loading rack at Bolinger, 15 miles west of the field on the Cotton Belt Railroad. The district contributed 42,500 bbls. of crude to local refineries consumption last year, sales being on individual contracts between the producers and purchasers.

Daily average runs from the several pools for the weeks were:

Louisiana	
Caddo, light	8,820
Caddo, heavy	2,750
Homer	4,050
Haynesville	5,520
DeSoto-Red River	4,000
Elm Grove	890
Bellevue	700
Cotton Valley	3,225
Urania	5,550
Pleasant Hill	470
Sarepta-Cartersville	200
Total	35,875
Arkansas	
El Dorado	4,840
Smackover, light	6,075
Smackover, heavy	51,060
Stephens	1,020
Nevada County	1,350
Lisbon	1,520
Champagnolle	10,650
Bradley	190
Total	77,405
Both states	113,280
Last week	114,453
Decrease	1,173

NORTH LOUISIANA

Bossier Parish

Elm Grove—Palmer Corp.'s No. 12-B Hodges, Section 25-16-12, tested 1,000,000 feet of gas at 1,878 feet and is shut down for orders.

Caddo Parish

Greenwood—Loraine Syndicate's No. 1-D Bryson, Section 18-17-16, is drilling at 1,950 feet.

Oil City—W. D. Chew cemented 6-inch at 1,843 feet on No. 8 fee, Section 33-21-16. C. G. Gibbins is coring No. 1 Gibbins, Section 15-21-16, at 2,605 feet. Magnolia Petroleum Co. has rig up for No. 18 Doan-Thigpen, Section 6-20-15.

(Continued on Page 108)

LIVELY LEASING CONTINUES IN OUACHITA AND UNION COUNTIES

By D. H. Bancroft

SHREVEPORT, La., Feb. 4.—McDonald Brothers' well on the Wilson farm in Section 25-15-18, Ouachita County, Arkansas, 6 miles west of Louann production in the Smackover district is the principal cause of leasing activity which continues in the southwest corner of Ouachita County and the northwest corner of Union County where numerous larger and smaller blocks have been and are being assembled, most of them on straight commercial leases at prices ranging from $5 to $15 per acre. While there are, in most cases, no drilling obligations it is quite evident that the purchasers intend drilling in the near future to 3,000 feet and in one or two instances to 4,500 feet or deeper.

Test of the McDonald well will probably be made within the next 10 days or so as they are setting 6⅝-inch at 2,778 feet to test the 6 feet of sand that filled four fourbles of drill stem with heavy oil on test in the first hole 50 feet south at a total depth of 2,821 feet. The total depth of the second hole is 2,809 feet, the log checking high on the Nacatoch and the red beds.

Shell Petroleum Corp. is completing a block in Townships 18 and 16 in the southwestern part of Union County centening in Section 19. Edmonson and others are building a block centering on Section 17-18-17, and Root Refineries are assembling one in the extreme southeastern part of the county centering on Section 27-19-10, over a geophysical "high."

Sam Richardson and others of El Dorado also are busy in the southeastern corner of the State and have 2,000 acres centering on Section 16-17-11, and while there is no drilling clause in their leases, they say if they are successful in getting an additional 1,000 acres they will start a deep well. Magnolia Petroleum Co. is building a block, of which it has taken approximately 3,000 acres between Champagnolle and Smackover in Townships 16-15 and 16-14, all on 10-year commercial leases.

Several Thousand Acres Blocked

In southwestern Ouachita County along the fault line northeast from Stephens Field, Skelly Oil Co., Pure Oil Co., Gulf Refining Co., Shaffer Oil & Refining Co., Oilwell Corp. and others have blocked several thousand acres and Louisiana Oil Refining Corp. has a block just south of the town of Stephens on which it plans to drill to 4,000 or 5,000 feet, probably in Section 22-15-19.

Most of the leasing in Arkansas for the last six or eight months has been on the strength of magnetometer "highs" and all of the wildcats drilled as a sequel of this activity have been on such "highs." So far none of them has been a successful completion. Recently there has been a change of sentiment and now much of the play is based on magnetic "lows" largely because surveys have revealed Lisbon and El Dorado south fields are on such "lows." On the other hand, Smackover and Champagnolle are on "highs," Smackover measuring 200 gammas, Champagnolle 60, and Lisbon and El Dorado south both 60 gammas low. The Shell's block in the Wesson district, Bush and others, the Coates and others' block in Township 17-17, and

(Continued on Page 108)

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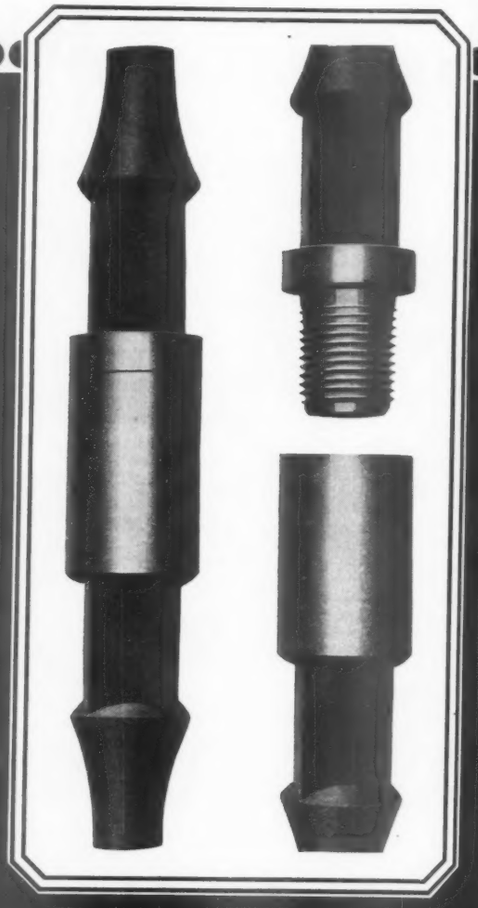

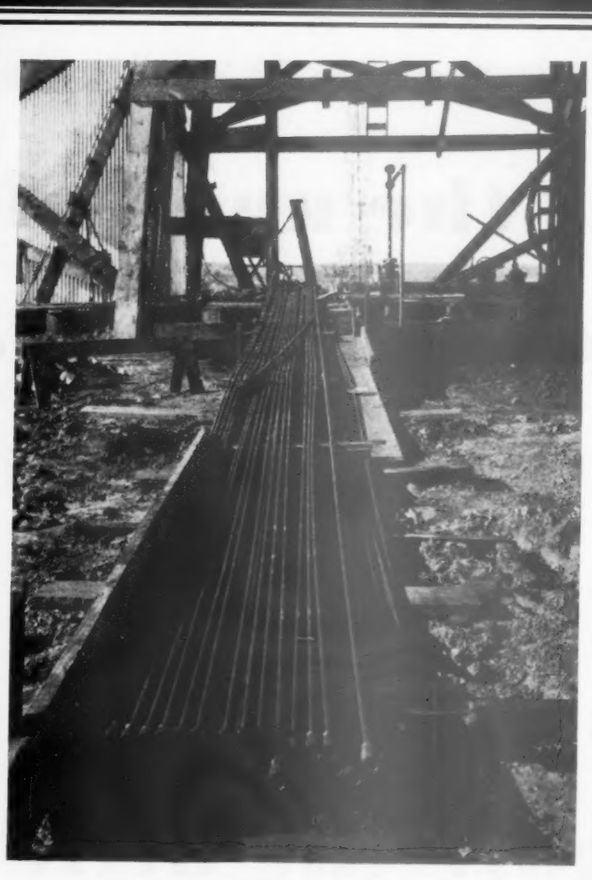

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Joe Bruner Field Has 35 New Locations

Production Is Up Around 18,000 Bbls. O'Hern Area Extended Half Mile. Big Gasser in Laredo Area

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 4.—Thirty-five or more new locations have been made in the Joe Bruner-Salt Flats Field in Caldwell County between the Humble Oil & Refining Co.'s No. 1 and No. 2 Johnson on the northeast end of the fie'd and the producing area of the field 2 miles and more to the southwest. No. 2 Johnson bailed down and was not showing much oil but later was deepened and late in the week came in again estimated at about 125 bbls. No. 1 Johnson was finally put on the pump last week and its initial production was 57 bbls. It was thought to be an east edge well. No. 2 Johnson is 600 feet to the west and it got the formations higher than in No. 1 and is a better well. The two wells are sufficient evidence that the field will extend that far to the northeast and the Gulf Production Co., Shell Petroleum, Humble and Texas, the major companies holding leases in the area, have all made new locations totaling around 35. The territory is cut up in relatively small leases of 20's, 40's and 50.s. Cranfill & Reynolds got from T. C. Hadley 170 acres right in the line and are starting three wells, one well on each of three tracts.

The past week has not been without many interesting features. Production in the Joe Bruner Field is up around 18,000 bbls. daily and Humble, Magnolia and Sun, the three concerns running oil from the field, have all cut the price of the crude to 80 cents a barrel. It was $1 a barrel.

Magnolia extended by a half-mile the O'Hern area at the north end of the Magnolia-Cole Pool in Webb County. Murchison & Fain No. 1 Webster in the Carolina-Texas Field in Webb County, drilled three years or more ago, is turning to oil. Humble has two new wells in the Kohler Ranch that tested gas at below 1,800 feet.

At the other extreme end of the Southwest Texas country in Milam County, Michalk & Clark's No. 1 Johnson near Thorndale in wildcat territory, cored at 1,945-95 feet, filled 60 feet in oil.

In the Refugio Field the two wells at the north end of the field, Union Exploration Co.'s No. 1 Holmes Heard, and Union Exploration Co. and William F. Morgan's No. 2 Leslie Adkins are still being worked with and there is every likelihood that each will make an oil well. Trouble is with the screen. No. 1 Holmes Heard has pulled the screen and is putting in a coarser screen and No. 2 Adkins is waiting on the results of the experiment. No. 2 Adkins made several heads while waiting for No. 1 Holmes Heard. Each is in the 3,700-foot sand. In the south end of that field Saxet Gas Co.'s No. 5 Claude Heard was deepened 4 feet to 3,713 feet and the amount of oil sprayed with the gas increased perceptibly.

Laredo District

In the Laredo district Magnolia Petroleum Co.'s No. 1 Volpe in Survey 660, a mile north of J. J. O'Hern's No. 1 Benavides, came in a big gas well in sand at 2,396-98 feet with 50,000,000 feet of gas and 750 pounds rock pressure. The core has shown so much oil there was every confidence it would be an oil well and there is still some confidence that ultimately oil will be found in that territory. This well is 2½ miles north of the Magnolia-Cole oil pool which was extended 1½ miles north by O'Hern's No. 1 Benavides, a gas well at about the same depth in the southwest corner of Survey No. 697. William F. Morgan went a quarter of a mile east of the Houston Gulf Gas Co.'s No. 1 Benavides in SW cor. NW of SW of Survey 693 and got a dry hole. The sand that produced in the Houston Gulf Gas Co.'s well and in the other wells of that area was not found in the Morgan well which indicates the limits on the east in that part of the territory. Magnolia had a little trouble with its No. 1 Volpe in Survey 660. It started to leak around the outer casing and the well was opened to keep it from doing more serious damage. It was then mudded in and a new string of casing run which will reduce the size of the hole somewhat. Another well being watched in that territory is the Houston Oil Co.'s No. 1 Benavides in the southwest corner of Survey 701 and about a half mile north of production in the Magnolia-Cole Pool. It is down 2,200 feet and within the next few days should be in the sand.

Kohler Gas Field

Humble Oil & Refining Co. last week tested gas in both its No. 12 and No. 13 Kohler, one of them over a mile northeast and the other over a mile southwest of the three gas wells recently completed in a new area. No. 9 Kohler in the southwest corner of Survey 164, Duval County, discovered a new gas area at 1,860 feet and came in for 20,000,000 feet. It is 2 miles and over southeast of the Kohler oil field on the same ranch discovered by Humble at around 2,800 feet. Reiter-Foster owns a fourth interest in the proposition. No. 10 Kohler is less than a half mile northwest of No. 9 and came in for 15,000,000 feet of gas at the same depth and No. 11 is a quarter mile southwest and came in for 25,000,000 feet of gas at 1,860 feet. No. 12 is 1½ miles southwest and tested gas at 1,817-20 feet and No. 13, a mile northeast, tested gas at 1,745-47 feet. Southern Gas Co. of San Antonio has a line to San Antonio running through the area.

So many new producing spots in the Laredo territory have merged into older pools it is difficult to tell what this will do. Also it is common knowledge that oil is nearly always somewhere around the gas in that district. Magnolia-Cole Pool is about 10 miles or more nearly due southwest of Humble's No. 9 Kohler and Simms' two gas wells in Surveys 660 and 62 are about 5 miles south of southwest from No. 9 Kohler. Producing areas in the Laredo territory take nearly a north and south course till they get as far north as the Magnolia-Cole and Cole Pools and then they shy off to the northeast. The original Cole gas pool is about 4½ miles south of Simms. Schoolfield-O'Byrne oil pool is 18 miles northeast of No. 9 Kohler.

Carolina-Texas

In the Carolina-Texas Pool in Webb County last week, W. R. Shankle's No. 1 Webster showed one joint of oil and 40 of salt water at 2,015-28 feet and is now coring at 2,568 feet. The well is 1,600 feet southeast of Usher Carson's No. D-5 Webster, an oil well, and the effort is to bring in an oil pool on that side of the Carolina-Texas gas field. The Carson well is producing at about 2,600 feet so the Shankle well is only now getting into the horizon where it should get the pay. Foster-Barnsley's No. 1 Webster, 600 feet southwest of the Carson well, late last week was drilling out the plugs and had a sand at 2,619-21 feet.

Humble Field—Duval

Humble Oil & Refining Co.-Reiter-Foster's No. 12 Kohler, Survey 403, located 1,485 feet to south line and 165 feet to east line, is drilling at 1,700 feet; No. 13 Kohler, Survey 163, located 495 feet to east line and 165 feet to south line, is drilling at 1,713 feet.

Driscoll Field

Robert Driscoll's No. 14 Driscoll, Survey 448, located 2,750 feet to east line and 550 feet to south line has sand at 1,770-1,802 feet and is testing.

Schoolfield-O'Byrne Pool

Magnolia Petroleum Co.'s No. 4-B Hahl, Survey 61, located 150 feet to south line and 2,481 feet to east line is rigging up. Sun Oil Co.'s No. 2 Henne-Winch, Survey 250, Block 20, located 150 feet to north and west lines has sand at 2,361-75 feet testing salt water and has shut down. S. & O. Oil Co.'s No. 2 Bowe, Survey 250, Block 21, located 220 feet to east line and 660 feet to south line is moving on.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 41 Merchants State Bank, Survey 155, located 150 feet to north and east lines is drilling at 3,164 feet. Randado Oil Corp.'s No. 29 Palacious, Survey 291, Block 14, is testing sand at 1,273 feet; No. 30 Palacious, Survey 291, Block 3, has sand at 1,287 feet and is testing.

Henne-Winch & Fariss Field

A. L. Kitselman's No. 1 Lopez, Survey 255, Block 6, located 289 feet to north line and 300 feet to west line is moving on.

Alworth Field

Brooklyn Oil Co.'s No. 2 Garza, Survey 40, Block 16, located 450 feet to northeast lines and northwest lines has derrick up.

Schott Field—Webb

Livingstone & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet to east line and 497 feet to south line has derrick up.

Reiser Field

Marts & Beavens' No. 2 Johnson, Survey 602, Block 10, located 150 feet to south and west lines is on rock at 1,660 feet. W. O. Wheatley, Survey 1,569, Block 3, located 847.7 feet to north line and 305.2 feet to east line is drilling at 2,600 feet.

Andrews Field

Cosner-Danmier's No. 2 G. Benavides, Survey 11, Block 14, located 150 feet to southeast and southwest lines is moving on.

Albercas Field

O. W. Killam's No. 33 Bruni, Block 64, is drilling at 2,000 feet. Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, located 4,675 feet to north line and 150 feet to west line has sand at 2,153-55 feet and is standing. Magnolia Petroleum Co.'s No. 13 Yeager-Strohman, Share 5, located 150 feet to west line and 750 feet to south line is drilling at 4,912 feet in lime; No. 14 Yeager-Strohman, Share 5, located 900 feet to north line and 575 feet to east line has derrick up; No. 15 Yeager-Strohman, Share 5, located 1,400 feet to north line and 575 feet to east line has derrick up. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet to north line and 150 feet to east line is standing at 2,145 feet. A. M. Major's No. 1 Holbien, Share 3, Block 6, located 150 feet to north and east lines is location. Ed-

(Continued on Page 111)

ACTIVITY IN WILDCATTING GROWS IN SOUTHWEST TEXAS TERRITORY

By B. D. Stevenson

SAN ANTONIO, Tex., Feb. 4.—Showings of oil here and there was the chief interest in wildcat areas other than the continued activity in taking leases in Gonzales, Wilson and Fayette Counties. This activity has been reported from time to time but it is growing in intensity rather than lessening. The J. J. Christie well in Guadalupe west of Staples fished the bailer out of the hole late last week. It had a showing of oil in the Austin at 1,053 feet but will probably drill deeper. The Miller Brothers well, 4 miles south of Seguin, at 1,987 feet and with a showing of oil in the top of the Austin has drilled out the plugs and will drill through the Austin before testing. This means 150 to 200 more feet and a week or so at least. The S. M. Oil Co. of Houston drilling east of Lockhart with a showing of oil in the Austin at 1,832 feet on the Lynch farm is drilling deeper and will go to the Edwards.

F. M. Cline and others in Medina County several miles southwest of Hondo and a little southwest of the Taylor or Medina Oil Co. shallow pool, has a showing of oil in No. 1 Bendele at 815 feet. Richardson drilled two wells on the lease and had showings of oil at 915 and 918 feet and Cline became interested in the proposition. He is arranging to set casing in his well at 800 feet.

Also in Medina County it looks like W. R. Painter would make a pretty good little shallow well out of his No. 1 Muennink reported some time ago as a completion and on which he has been working ever since. He is pumping it and occasionally it heads.

Lease activity in Medina is down the Live Oak Slough from the Taylor Pool southeast to the Adams gas field and there will probably be some wildcat tests drilled in the area which is 15 to 18 miles long.

Natt Holman of Del Rio has a rig on the ground to drill in the Shiner ranch in the central part of McMullen County a little south of the Nueces River and in the Henry M. Brower Survey. It is 500 feet from where Charles Snapp of Chicago drilled several years ago and almost made a well. The hole got so small from setting strings of casing that when the showing was had it was too small to work in. When the old well is opened now it makes enough gas to fire a boiler and the new operators will use the gas for fuel. It also makes water with a trace of salt in it and the water will be used in the boiler. It will be a 4,000-foot test.

Considerable interest has been centered in Michalk & Clark's No. 1 Johnson in the southwestern part of Milam County near Thorndale. Last week it was tested and filled 60 feet with oil in 25 minutes. It had the Austin chalk from 1,232 to 1,904 feet. It had a sand at 1,945-95 feet and it is in this sand that the showing of oil was found.

Duval County

National Oil Co.'s No. 2 Ball, 300 feet to north and west lines of Block 5 of subdivision of Ball Ranch, is using magnetometer to check location. Magnolia Petroleum Co.'s No. 2-A Hahl, Survey 51, located 150 feet to south and east lines, is drilling at 4,846 feet. O. Henry Oil Co.'s No. 1 Henry, Block 1,879, Snodgrass Subdivision of Mesquite grant, 450 feet to southeast lines and 220 feet to northeast lines, cored at 1,436-43 feet and will test. W. F. Morgan's No. 1 Welder-Woods, Survey 102, located 2,725 feet to east line and 75 feet to south line, is rigging up.

Starr County

The Texas Company's No. 1 Ofelia Resendez, Porcion 69, Block 174, located

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Gulf Coast Producing Areas Widened

Important Wells Completed in Barber's Hill, Gay Hill and Pierce Junction. Drilling Flurry Expected in First-Named District

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 4.—Developments in the Gulf Coast the past week were marked by important extensions of production at Barbers Hill, Gay Hill and Pierce Junction but despite this new oil a sharp drop in the daily average production of Coastal fields as a whole was reflected from the peak reached the preceding week. Daily average production for the week totaled only 139,775 bbls. as against 145,635 bbls. in the previous report.

At Barbers Hill, Yount Lee Oil Co. opened the first deep production on the southwest flank of the dome in its No. 1 Chambers County, which came in with an estimated 2,200 bbls. daily on a half-inch-choke. This well is approximately 1½ miles distant from the deep production opened recently by Bennett Petroleum Co. and now being developed by this company and the Humphreys Petroleum Corp. The Yount Lee well, which was started as a result of the southeast flank discoveries, was completed in a sand at a total depth of 5,314 feet, the oil testing 29.4 gravity. It was pinched in to approximately 1,100 bbls. on a quarter-inch choke, but on a three-eighths inch choke Friday it made better than 3,000 bbls. Screen in the hole totaled 208 feet.

Completion of this well probably will be followed by another drilling flurry in the district. Yount Lee Oil Co. already has a rig up for No. 2 Chambers, 150 feet west, and offsetting this Gulf Production Co. has location for No. 1 Fisher fee. Sun Oil Co. also holds acreage offsetting this tract and probably will drill.

The Gay Hill district of Washington County gave another indication of its possibilities early in the week when Sun Oil Co.'s No. 1 H. Witt was brought in, flowing 330 bbls. in two hours or at the rate of nearly 4,000 bbls. daily. Like the two other producers, one of which also was a 4,000-bbl. well, the No. 1 Witt is flowing from a shallow sand at 971 to 1,250 feet, the thickness of the sand being characteristic of the field.

Well Will Be Worked Over

The Witt well is approximately 600 feet to the northwest of No. 2 G. H. Grote, which also was a 4,000-bbl. well. Another Gay Hill test, No. 1 J. Grote, approximately 600 feet to the north of the No. 2 G. H. Grote, came in about the same time as the No. 1 Witt, but accompanied by a heavy flow of water it was shut in and will be worked over. It is at a total depth of 1,395 feet.

Gay Hill, which was opened for production late in 1928, is the furthest north of what are considered Coastal fields. The entire acreage is held by the Sun Oil Co. but because of numerous landowners drilling has become active with four rigs actually running and with locations made for three other tests. Production so far has been shut in almost entirely, although some oil now is being run through the small line recently completed to loading racks at Gay Hill.

Sun Oil Co.'s No. 3 G. H. Grote also was completed the last week, but this made only a small gasser in sand at 961 feet. It is south of the discovery well, which so far is the furthest south of the oil production.

At Pierce Junction, Abercrombie & Harrison's No. 3 Ritter extended production on the north flank 170 feet to the west, another step in linking the production on the north with that on the west and northwest. This well on an hour's gauge flowed 1,630 bbls. of 28 gravity oil (at 64 degrees). Production is from a sand at 4,640 feet, being topped at 4,610 feet.

These wells were the only ones which added any noteworthy production to the Coastal territory during the week and the fact that these were pinched in and a natural decline was recorded in some fields with very little new production being added during the preceding week accounted for the sharp drop in Coastal production.

Inside Well at Lockport

Among the other completions was Vacuum Oil Co.'s No. 22 Miller at Lockport, which came in flowing 1,200 bbls. on a three-eighths-inch choke with a pressure of 520 pounds. This is strictly an "inside" well and from the main producing sand at a total depth of 4,339 feet. Vacuum also got a well at Lockport in its No. 20 Miller, a former well deepened to 3,620 feet. It flowed 500 bbls. on a three-eighths-inch choke with a pressure of 420 pounds.

At Big Creek, Navarro Oil Co.'s No. 2 Davis which picked up another shallow sand at 1,214-26 feet made a 400-bbl. producer. The well was deepened from 789 feet at which depth it originally had been completed as a small pumper.

Humble Oil & Refining Co. completed a gasser at DeWalt, Fort Bend County, this being No. 1 Nelson which came in from a sandy shale at 3,442 feet. It is spraying some oil. Of particular interest at DeWalt is the entrance of the Gulf Production Co. into the picture with two locations, one to the northwest of the Humble work and the other to the northeast. Heretofore Humble has been the sole operator, opening the field last March and developing it to over 7,600 bbls. daily pinched in. Humble's extensions have brought production to within a comparatively short distance from each of the Gulf's tracts.

Sun Oil Co. added to its now long string of producers in the new shallow sand pool on the South Liberty Dome with two more wells, Nos. 29 Mitchell flowing 600 bbls. daily from sand at 1,873 feet and No. 32 Mitchell flowing 950 bbls. at 1,036 feet.

Other Completions

Other completions were: Gulf Production Co.'s No. 36 Davis, Big Creek, a work over, flowing 1,200 bbls. at 3,612 feet; Heine & Gayle's No. 5 Kostelink, Boling shallow, 20 bbls. at 440 feet, and Salt Dome Oil Co.'s No. 1 Shaw, Vinton, pumping 175 bbls. of fluid, 16 per cent b.s. and water.

Superior Oil Corp.'s No. 4-B Settegast, which extended production at Pierce Junction, approximately 2,500 feet south to the southwest flank of the dome, has gone to salt water and is to be deepened. It came in flowing 800 bbls. of pipe line oil from sand at 3,933 feet, marking the first production on the southwest flank.

A disappointment from a rank wildcat standpoint was the testing of salt water in South Texas Petroleum Co.'s No. 1 Hartfield on the Needville Dome prospect in Fort Bend County. It tested a sand at 4,996-5,011 feet but will go deeper. The well, which is the first drilled on the geophysically discovered dome, has been watched closely by Coastal operators.

Some attention now is being centered on Sun Oil Co.'s No. 1 Kovelieka, a rank wildcat on the north side of the old North Dayton Dome. This test encountered an oil showing sand at a total depth of 4,468 feet and has cemented casing to test. At the close of the week an oil line was being laid to storage to take care of production expected from the test.

Daily average production of coastal fields and also southwest Texas fields for the week ending February 2 was:

GULF COAST

Texas

Allen Dome	7
Barbers Hill	2,920
Batson	1,346
Big Creek	5,114
Blue Ridge	4,301
Brenham	150
Boling	2,237
Damon Mound	650
DeWalt	7,650
Fannette	905
Gay Hill	1,200
Goose Creek	6,551
High Island	1,102
Hull	9,833
Humble	5,219
Jasper	10
Markham	442
Nash Dome	630
North Dayton	510
Orange	3,155
Orchard	90
Pierce Junction	10,741
Raccoon Bend	1,954
Saratoga	975
Sour Lake	2,946
So. Liberty-So. Dayton	6,945
Spindletop	33,776
West Columbia	1,154
Total this week	118,513
Total last week	122,906
Decrease	4,393

South Louisiana

Anse La Butte	41
Bayou Bouillon	530
Edgerly	868
Evangeline	845
Hackberry	5,694
Lockport	3,840
Sorrento	850
Starks	720
Sulphur	2,900
Sweet Lake	685
Vinton	4,259
Welsh	30
Total this week	21,262
Total last week	22,729
Decrease	1,467
Total Gulf Coast	139,775
Total last week	145,635
Decrease	5,860

SOUTHWEST TEXAS

Dale	648
Gonzales	50
Kingsville	274
Luling*	31,707
Lytton Springs	1,106
Refugio	1,155
Somerset	1,914
Mirando	13,114
Medina County	30
McMullen	39
Total	50,037
Total last week	48,237
Increase	1,800

*Includes Bruner, 16,970 bbls.; Caldwell, 8,460 bbls.; Guadalupe, 4,483 bbls.; Larremore, 207 bbls.; Yoast, 1,587 bbls.

Barbers Hill—Chambers County

Humphreys Corp.'s No. 6-B Kirby, southeast side of the dome, Saturday still was coring at a total depth of 5,489 feet. Plug was drilled out at 5,376 feet and so far showings have not justified setting screen. If this test fails to make a well in this deep sand it will be plugged to a sand at 4,927-53 feet, where a good showing was passed up. This company's No. 1 Cornelia Barber is drilling in a sand showing some oil at 4,687 feet. Bennett Petroleum Co.'s No. 1 Means is drilling gumbo at 2,612 feet. Its No. 2 Kirby, which failed to find the deep pay at 5,438 feet, is pulling screen to go deeper. Joe Bashara's No. 1 Tarbutton is drilling sticky shale at 4,517 feet.

On the southwest side of the dome, Yount Lee Oil Co. is rigging up for No. 2 Chambers, which is 150 feet west of No. 1 Chambers, completed earlier in the week as a good deep producer. This company's No. 3 Richardson is drilling sand at 1,629 feet.

Humble—Harris County

South Texas Petroleum Co.'s No. 3 Morris, W. T. Charles Survey on the south side of the field, where deep production recently was opened by this company, is drilling gumbo at 2,040 feet. The Texas Company is rigging up for a north offset to South Texas Petroleum Co.'s No. 1 Morris, the deep producer. This will be No. 39 Stevenson. On the north side of the field, The Texas Company's No. 14 Koehler, a former shallow well being deepened, has found a sand at a total depth of 2,701 feet and has set casing for a test. The Texas Company's No. 22 House is drilling brown shale and lime at 3,976 feet.

Raccoon Bend—Austin County

Humble Oil & Refining Co. and Valley Oil Corp.'s No. 1-C Grawunder is drilling shale at 3,192 feet. These operators' No. 2 Walton is drilling sandy shale at 3,003 feet, and their No. 2 Hardy in hard sand at 3,230 feet. All three of these tests should be in the pay sand shortly. These operators' No. 3 Urban is drilling hard sand at 930 feet. No. 1 J. W. Wilson has cemented a string of surface casing at 200 feet. No. 2 Kearns is drilling rock at 212 feet, and No. 1 E. Ueckert is drilling shale at 260 feet. Rigs also are up for No. 2 Dieutrichs, No. 1 Sherrill, No. 3 Roy Thompson and a new location has been made for No. 2 Saunders. One shallow test, No. 2 E. B. Wilson, was abandoned in sand, shale and lime at 1,156 feet.

DeWalt—Fort Bend County

Humble Oil & Refining Co.'s No. 1 Nelson is blowing gas with a spray of oil after being brought in from a sandy shale at a total depth of 3,442 feet. No. 2 Deatherage is drilling sandy shale at 3,411 feet. No. 2 Camp is drilling sticky shale at 1,812 feet. No. 5 Sugarland is spudding in. Nos. 2 and 3 Brazos farms are rigged up and No. 4 is a derrick. Gulf Production Co. is entering the DeWalt district and has made locations for No. 1 Deatherage and No. 1 Sugarland.

Nash Dome—Fort Bend and Brazoria

Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 1 Wisdom is drilling hard shale at 5,342 feet. Rycade's No. 21 Wisdom has drilled into an oil-showing sand at a total depth of 4,218 feet and will test. No. 24 Wisdom is drilling a dry shale at 4,291 feet.

Big Creek—Fort Bend County

With the completion of No. 2 Davis as a shallow producer at 1,214-26 feet, Navarro Oil Co. is building derrick and moving rig over for No. 3 Davis. The Texas Company's No. 4 Wheat is drilling sand and shale at 3,643 feet. Gulf Production Co.'s No. 51 Davis is drilling gumbo and lime at 1,850 feet. This company also is rigged up to deepen its No. 15 Davis, a former producer, using the rig from No. 36 completed early in the week.

Hardin County Domes

At Saratoga, Rio Bravo Oil Co. is down 250 feet in its No. 106 B.B.B.&C., where a string of surface casing has been run. South Texas Petroleum Co.'s No. 1 Baker, also Saratoga, is rigging up and Skinner Oil Co. is starting another test, No. 15 Kirby.

Elberts and associates' No. 4 Hebert, Sour Lake, had set strainer and was testing a sand showing oil at a total depth of 1,884 feet.

Spindletop—Jefferson County

Yount Lee Oil Co. has abandoned its No. 50 McFaddin with a junked hole. No. 53 McFaddin is sidetracking at 4,077 feet. No. 89 McFaddin is coring at 3,900 feet, and No. 90 McFaddin is in sand, shale and lime at 2,950 feet. No. 91 McFaddin is drilling sand and lime at 3,525 feet. No. 92 McFaddin is in gumbo at 2,775 feet. No. 93 has been rigged. No. 1 Davis tested salt water at 2,975 feet. No. 23 fee, a former well, is cleaning hole to deepen.

On the Gladys City tracts, Yount Lee Oil Co.'s No. 37 Gladys City is sidetracking at 3,925 feet. No. 74 is drilling sand and lime at 3,975 feet. No. 75 Gladys City is drilling shale and lime at 2,975 feet. No. 76 is in shale and lime

(Continued on Page 110)

KINGHAM OLD HICKORY TRAILERS

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Old Hickory Kingham trailers are not an experiment in the Oil Fields as they have been used with success for the past five years. During that time many new features have been added among which are Alemite Zerk Lubrication. The reduction in price is brought about by the increased volume of sales. The features which have quickened their rapid strides to popularity are Unsurpassed SERVICE, High QUALITY and Low PRICE.

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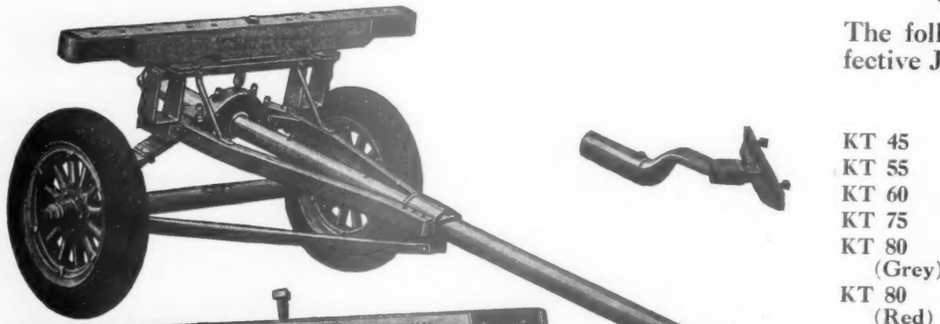
KT 60	250.00	275.00
KT 75	525.00	575.00
KT 80 (Grey)	300.00	325.00
KT 80 (Red)	350.00	370.00



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Lea County Well Slops Over the Top

Rumors of Well in Uinta County, Utah. Iles Dome Has 700-Bbl. Completion. Oil Rises in Pueblo Wildcat

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Feb. 2.—Southeastern New Mexico continued to hold the spotlight in the Rocky Mountain area this week, the Marland Production Co.'s No. 1 Lockhart, north of the Jal district and south of the Hobbs High, in Lea County, furnishing the most important development. It showed considerable oil at 3,795-3,805 feet and when bailer was run the oil slopped over the top. It was then shut down for orders. The Gypsy Oil Co.'s No. 1 Ramsey was completed as a 20,000,000-foot gasser, and the Skelly Oil Co.'s No. 1 Joyner made 133 bbls. of oil and practically no water on January 23 after being deepened to 3,302 feet, but next day was reported having 200 feet of water in the hole. Hill & Abel's No. 1 Maechtel, Section 5-26-33, was abandoned at 5,006 feet without getting out of the salt section.

Rumors of a well in Uintah County, Utah, were not confirmed though it is reported showing some saturation through a column of water.

Colorado had a 700-bbl. completion in the Midwest Refining Co.'s No. 3-SD Shaw on the Iles Dome in Moffat County, in the Sundance, and McLaughlin and others' No. 1 Williams in the fault block south of the Iles Dome is apparently running high. Oil is reported to have risen to within 200 feet of the top in the Rozella Oil Co.'s wildcat southeast of Pueblo, which has been standing without being tested on account of litigation.

In Wyoming, the Wyoming Oil Fields Co. has a 200-bbl. well in the third Wall Creek in Salt Creek, but cold weather has held back the wildcats in other parts of the State.

NEW MEXICO

Southeastern New Mexico again sprang into the limelight this week when the Marland Production Co.'s No. 1 Lockhart, NE NW NW Section 31-21s-36e, in Lea County, commenced making oil along with some gas and was shut down for orders. The well is in the Eunice district, 30 miles north of the Winkler County, Texas, boundary and 13 miles west of the Andrews County, Texas, line. It is an area where wildcatting in the past few months has resulted in favorable indications for the opening of a pool in several wells and which has aroused as much interest as the operations in the Jal area farther to the south and the Hobbs High farther to the north. The Marland well had its first show of oil at 3,500-25 feet in brown lime and sand, followed by gas and oil at 3,585-95 feet in sandy lime. Showings continued and at 3,795-3,805 feet in white sandy lime it began making considerable oil. The bailer was run and the well slopped over. It was then shut down for orders. It was making about 1,500,000 feet of gas along with the oil. The latter is 32 gravity.

The well is 2½ miles west and one-half a mile north of the Gypsy Oil Co.'s No. 1 Ramsey, SW cor. Section 34-21-36, and 5 miles east and 4 miles south of the Empire Gas & Fuel Co.'s No. 1 State, NE NW Section 8-21-35. The Gypsy's Ramsey well was recently completed at a total depth of 3,856 feet as a 20,000,000-foot gas well after plugging back from a sulphur water sand at 3,907-10 feet. This well had several shows of oil along with the gas. It topped the salt at 1,635 feet and bottomed it at 2,700 feet. The top of the lime was at 3,035 feet, and the elevation is 3,587 feet. This company next moved over to the SW cor. SE Section 24-21-36, 3 miles to the northeast and started No. 1 Mattern, which commenced spudding on January 21, and is bottomed at 150 feet and using gas from the Ramsey well. The Empire Gas & Fuel Co.'s No. 1 State was completed last fall at 3,835 feet and in 12 days in November made 868 bbls. of oil and 900 bbls. of water. The Empire well topped the salt at 1,750 feet, and topped the lime at 3,390 feet. This company then moved over into the SW cor. Section 12-21-34 and commenced drilling on its No. 1-C State, 1¾ miles west and one-half a mile south of No. 1 State. No. 1-C State is drilling at 3,608 feet in lime. The top of the lime was found at 3,575 feet. The elevation is 3,714 feet.

Jal District

The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE Section 26-25-36, in the Jal district, another Lea County well which has been attracting attention for several weeks, was reported last week bottomed at 3,297 feet and preparing to plug back and mud behind the 8¼-inch casing in an effort to shut off some water leaking in. At that depth it made 100 bbls. of oil and 5 to 10 bbls. of water on January 15. It was then deepened to 3,302 feet and swabbed and flowed 150 bbls. first three days, making less than 1 bbl. of water per day. It was then reported on January 23 as making 133 bbls. of oil and practically no water. On January 24 it was reported having made 110 bbls. of oil and to have had 200 feet of water in the hole.

The Marland Production Co.'s No. 1 Meyer, SW cor. NW Section 26-20-37, in the Eunice district, 6 miles to the north of its No. 1 Lockhart, is drilling at 3,545 feet in lime and results will be closely watched during the next few weeks. The elevation is 3,508 feet and it topped the lime at 2,795 feet. It appears to be running high and has been showing considerable gas at several horizons, the one at 3,508-35 making 10,000,000 feet. Same company's No. 1 Reed, NE cor. SW Section 22-20-36, San Simion district, bottomed the salt at 2,995 feet and is at 3,035 feet in anhydrite and running the 8¼-inch. The Marland's No. 1 Warren, SW SW Section 28-20-38, in the Nadine district, is still shut down at 2,930 feet. Hill & Abel's No. 1 Maechtel, SW cor. Section 5-26-33, on the southwestern side of Lea County, was abandoned at a total depth of 5,006 feet. At that depth it had 500 feet of salt water in the hole. It topped the salt at 1,150 feet and was still in salt when drilling stopped. The elevation is 3,318 feet. Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor. Section 18-20-34, is drilling at 1,210 feet in the red beds, and the Texas Pacific Coal & Oil Co.'s No. 1 State, SE SW Section 22-23-36, is drilling at 940 feet. The Midwest Refining Co.'s No. 13 Farnsworth, NE NE Section 13-26-36, Jal district, is bottomed at 1,310 feet and running 12½-inch casing, and its No. 19 Farnsworth, SW SW Section 12-26-37, in the same area, is still trying to get by the tools at 3,877 feet total depth. The Maljamar Oil & Gas Co.'s No. 2 Pearsall, C NE NE Section 33-17-32, in the Caprock area, continues to have shows of oil and gas, the last being at 4,050-54 feet. It is drilling at 4,075 feet in gray and white lime. The Midwest Refining Co.'s No. 31 Capps, SW cor. Section 3-19-38, on the Hobbs High, has completed rig. The Marland Production Co.'s No. 1 Lynn, NW cor. SE Section 26-23-36, in the Onchoa district, which showed for 40,000,000 feet of gas at 3,660 feet, is shut down for boiler repairs at 3,695 feet in gray lime.

Eddy County

In Eddy County, the Operators Oil Co.'s No. 1 State, NW cor. NE Section 4-18-28, in the Artesia Pool, is listed as a completion at 2,411 feet total depth. The pay at 2,285-2,300 feet was shot with 80 quarts and had an initial production of 15 bbls. Flynn, Welch & Yates' No. 1 Jackson, C NE Section 13-17-30, is bottomed at 3,451 feet where it is flowing by heads estimated at 50 bbls. per day.

In Chaves County, the Transcontinental-California Oil Co.'s No. 1 Robbins, SE cor. Section 1-14s-28, 8 miles east of Hagerman, is moving in. The location is 330 feet each way out of the corner. L. B. Tannehill's No. 1 Butler, SE cor. Section 15-12s-24, commenced spudding on January 7, and is bottomed at 300 feet in red shale. It had a hole full of water at 200 feet and the 12½-inch is at 215 feet.

The Sun State Petroleum Co.'s No. 1 Passemonte, SE cor. Section 14-24-30, in Union County, which has been standing for more than a year, has been abandoned at 2,805 feet. McGregor and others' No. 1 Azal, NW NE Section 23-17-16e, San Miguel County, is reported abandoned at 168 feet.

Activities in the northwestern area were considerably slowed up the past week by bad weather. Wells recently reported abandoned in that area include the Milwaukee-New Mexico Syndicate's No. 1 Beardsley, C NE Section 30-28-11, in the Kutz Canon district at 1,050 feet, and the Rio Grande Development Co.'s No. 2 Lanier, SE NW Section 9-29-11, near Aztec, at 580 feet. The Continental Oil Co.'s No. 17, Section 2-29-19, Rattlesnake Dome, is cleaning out at 6,344 feet, 34 feet off bottom.

UTAH

Reports of a big well in the Western Venture Corp.'s No. 1 Krumveida, SE NW Section 6-5s-21e, Vernal monocline, in Uintah County, Utah, have been printed in some of the newspapers, one saying it was flowing 1,000 bbls. per day until shut in, and another putting a similar estimate on what it is expected to do, but the major operators have not allowed themselves to become excited. What appears to be a reliable report is to the effect that it was cemented at 1,291 feet, total depth, to make a water shutoff and that as soon as the cemented is drilled out the sand will be tested to see if it is commercial. The Phillips Petroleum Co.'s No. 1 Schick, Section 16-27-16, Barrier Creek Dome, in Wayne County, is reported sidetracking bit at a total depth of 4,575 feet. Last week it was erroneously reported the tools had been recovered and drilling resumed. The Utah Southern Oil Co.'s No. 1 Farnsworth, Section 29-4s-1e, Uintah County, is drilling at 2,560 feet in hard gray limey shale, and same company's No. 1 J. L. Shaffer, Section 36-26-20, Cane Creek Dome in Grand County, is drilling at 2,665 feet in gray sandy lime. The Continental Oil Co.'s Boundary Butte test in Section 22-43-22, San Juan County, has not made any new hole below 4,525 feet where it showed for several million feet of dry gas, and is pulling pipe to underream.

COLORADO

A completion on the Iles Dome in Moffat County, Colorado, the first for some time, was reported this week in the Midwest Refining Co.'s No. 3-SD Shaw,

(Continued on Page 97)

DRILLING IS GOING ON STEADILY IN THE TURNER VALLEY FIELD

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Feb. 2.—In spite of extreme cold weather, drilling is going on steadily at most of the active tests in the Turner Valley Field southwest of Calgary. In the Royalite Oil Co.'s wells, steam heat has been installed in the closed-in rigs, so that cold weather does not interfere materially with drilling.

Royalite Oil Co.'s No. 15, LSD 1, Section 12-20-3w5, looks like a commercial producer of light crude in the Dakota sands at 3,003 feet. It is reported the well is making around 100 bbls. a day, though no official statement is being made till the production test is finished. The well will probably be put on the pump for as long as production holds up, and then carried deeper to the lime.

Royalite Oil Co.'s No. 14, LSD 4, Section 7-20-2w5, is probably the most interesting test now drilling. Several months ago it surprised operators by getting the top of the lime at a new high, 3,220 feet. Casing was cemented in the top of the lime, after a big burst of gas was encountered. Since then a variety of drilling difficulties have held back the test, several weeks being spent in drilling past and casing off a lost lubricator. The test is at last reported making new hole in the lime. The show of wet gas in the top of the lime, coupled with the fact that the lime was met at a record high point, has led operators to look for a big producer, which may outdo Royalite's No. 4 gusher. With good luck Royalite's No. 14 may be in the deep production by the end of February.

Royalite Oil Co.'s No. 13, LSD 6, Section 13-20-3w5, is reported drilling in the lime at 4,946 feet. Royalite's No. 12, LSD 3, Section 13-20-3w5, is drilling at 3,146 feet. Royalite's No. 16, LSD 2, Section 12-20-3w5, is at 4,711 feet, and cementing 6¼-inch casing on the bottom. Royalite's No. 17, LSD 13, Section 6-20-2w5, is at 3,965 feet and making a test of the light crude production. Royalite's No. 18, LSD 15, Section 12-20-3w5, is standing cemented at 3,826 feet. Royalite's No. 19, LSD 5, Section 6-20-2w5, is drilling at 3,611 feet. Royalite's No. 20, LSD 7, Section 12-20-3w5, is drilling and underreaming at 3,020 feet. Royalite's No. 21 is drilling at 1,657 feet.

In the center of the field, Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, which has been producing from the Dakota sands at 3,707 feet, is starting to drill to the crude naphtha horizon of the deep lime.

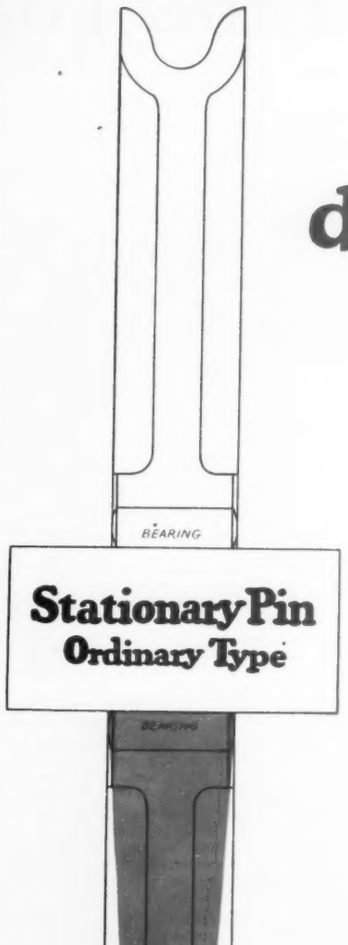
In the south end, Home Oil Co.'s No. 1,LSD 10, Section 20-19-2w5, is drilling in the lime at 5,212 feet. Home's No. 3, LSD 14, same section, has drilled out the cement at 4,429 feet and is making new hole. Home's No. 4, same LSD, is drilling at 1,105 feet. Northwest Associated's No. 1, LSD 6, same section, is drilling at 3,340 feet.

Dalhousie Oil Co.

Shareholders of Dalhousie Oil Co. are holding their annual meeting at Calgary, when steps are to be taken to effect a

(Continued on Page 105)

Why the dual bearings in Regan Blocks



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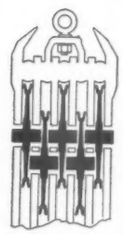

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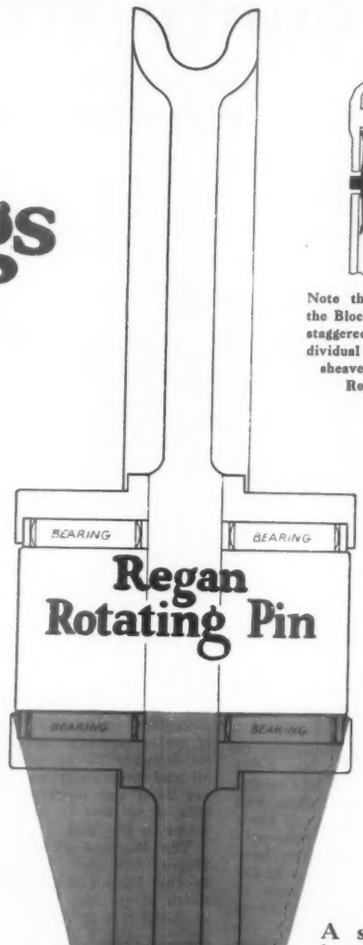

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Next 30 Days to Tell California Story

Tests Now Drilling to Miocene Zone at Santa Fe Springs Regarded as Big Factor in Crude Production This Year

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 2.—The next 30 days should prove an interesting and important period in the California oil industry as development work during this time should definitely establish the trend of production during the remainder of 1929. Several deep tests are already under way in the Santa Fe Springs Field with development of Miocene production as their objective. If these exploratory wells fail to encounter large production below present Buckbee zone the situation in California should show an appreciable improvement. Conversely, if the Miocene formation at Santa Fe Springs is found highly productive, as most geologists anticipate, conditions will continue to be very unsettled. The present producing Nordstrum and Buckbee horizons, while they will register substantial production, can be taken care of without any great inconvenience, as peak production will be relatively short lived, but if additional prolific production is secured in the Miocene formation on top of the present deluge it is bound to unfavorably affect marketing conditions. The importance of this deep drilling at Santa Fe Springs is quite obvious, especially because the result of this work will be reflected one way or the other in future production.

Outlook for Lawndale

Development work during the next 30 days in the recently discovered Lawndale Field of Los Angeles Basin is also expected to play an important part in the determination of future production. Unusually rapid footage has been made in several recent spuds in this field, and unless something unforeseen develops, sufficient data should be available shortly to enable petroleum engineers to correlate well logs and and gain some idea in advance of what may be anticipated. It is absolutely impossible to predicate the future of any field on the showing of one or two wells, especially if they are located within a few hundred feet of each other, such as exists at Lawndale. There is a wide divergence of opinion among geologists as to the potentiality of the Lawndale Field, and this lack of unanimity precludes the establishment of any satisfactory production estimates. Micropaleontologists have definitely established the fact to their satisfaction that the oil now being produced at Lawndale is of Miocene age. This is especially apropos of existing conditions at Santa Fe Springs and tends to confirm the theory that deeper production will ultimately be developed in the Miocene formation below the Buckbee zone in that field. Geological conditions at Lawndale differ from those prevailing at Santa Fe Springs in that the overlying Pliocene formation was not found productive in the former field.

Kettleman Hills and Elwood Terrace, two other important factors in California production, are not causing marketers any considerable degree of alarm as both districts are devoid of town lot areas and will be developed along conservative lines, in contrast with the intensive competitive drilling which has characterized drilling operations in many recent southern California fields. The Barnsdall and Rio Grande undoubtedly control the total productive acreage in the Elwood Terrace Field of Santa Barbara County, and although potentially productive acreage in the Kettleman Hills Field of Kings County is held by a number of different operators, the freedom from competitive drilling precludes the development of abnormal production. The Ventura Avenue Field will probably average somewhere around 50,000 bbls. per day during 1929 due to conservative development, although daily output could be stepped up to over 100,000 bbls. if necessary. The Rincon Field of Ventura County, located on the western extremity of the Ventura Avenue anticline, has taken on a very doubtful aspect during the past 60 days, and while deep production is not entirely out of the question the outlook cannot be considered especially encouraging by even the most optimistically inclined. Santa Fe Springs, Lawndale, Kettleman Hills and Elwood Terrace will be the most important factors in California production during 1929, and a change one way or the other should have a decided bearing on future production. Development work in the first two fields should therefore be watched very closely as the trend in either field will be reflected in subsequent state production.

Santa Fe Springs

The past week witnessed the completion of another large number of new wells in the deep zone at Santa Fe Springs with the result that field production registered a substantial increase. Approximately 50 new wells are scheduled for completion in the deep Buckbee and intermediate Nordstrum horizons at Santa Fe Springs during the month of February, and it is needless to say that state production will reflect this work in a very substantial manner. There are 196 drilling projects under way at Santa Fe Springs with the deep zone as their objective, a large number of which should be finished before the close of March. The peak production at Santa Fe Springs is expected to be reached during the latter part of February with the top somewhere in the neighborhood of 250,000 or 275,000 bbls.

The General Petroleum, which inaugurated an intensive development program at Santa Fe Springs shortly after the initial deep zone completion was finished, boosted its current daily production in this district to well over 50,000 bbls. by bringing in another group of new flush wells during the past week. This company has completed 23 wells in the deep zone up to the present time and should continue to chalk up new deep zone completions for several weeks, as it is still carrying 37 drilling projects on the daily progress report. The five new wells finished by the General Petroleum during the past seven-day period registered an aggregate initial daily output of 20,158 bbls. All of the company's latest completions were finished in the lower Buckbee horizon with the exception of No. 77-A, which was brought in a few days ago flowing 2,350 bbls. of 34.9 gravity oil daily from the intermediate Nordstrum zone at 5,288 feet. The company started off the week by bringing in No. 177-C flowing 4,075 bbls. daily from 5,866 feet and followed this up with 178-B, which tanked 6,650 bbls. of exceptionally clean 34.8 gravity oil during the initial 24-hour test from 5,889 feet. Nos. 209 and 226 came in shortly afterward flowing 2,795 bbls. and 4,288 bbls. daily from 5,881 feet and 5,843 feet, respectively.

The Standard has not yet hit its stride at Santa Fe Springs, with the result that it has only finished four deep zone completions up to the present time. Two of this quartet were finished during the past week, No. 11 Koontz coming in flowing 1,350 bbls. daily from 5,798 feet and No. 15 Walker 1,620 bbls. per day from 5,791 feet. The Shell added one new well to its list of producers when No. 15 G.H.&N. came in under a natural flow making 1,452 bbls. of exceptionally clean 35.1 gravity oil daily from 5,767 feet. The Shell also recompleted No. 16 G.H.&N. on the same lease after redrilling and deepening it to 5,795 feet, from which depth it was returned to production flowing 1,605 bbls. of clean 35.2 gravity oil daily. The Union's No. 10 Alexander proved a distinct disappointment when it only registered an initial of 550 bbls. daily from 5,750 feet, but this company will make up this deficiency within the next 10 days, as it has 13 wells already in the pay. Two of this group are being hooked up at the present time, and they should be turned loose within the next 24 hours. Graham & Loftus, who experienced considerable success in deep zone development at Long Beach, successfully completed their second deep well at Santa Fe Springs when No. 2 Community was brought in under a natural flow doing 2,922 bbls. daily from 5,810 feet. The Wilshire Oil Co., which has four wells nearing completion, successfully finished No. 1-A Peterson doing 3,760 bbls. of exceptionally clean 34.2 gravity oil from 5,775 feet. George F. Getty also chalked up a satisfactory completion during the week when his No. 23 blew in flowing 6,075 bbls. daily from 5,880 feet.

Lawndale

At the close of the past week there were 31 wells actually making hole in the recently discovered Lawndale Field of Los Angeles Basin and, judging by the rapid footage made up to the present time and the rapidity with which work is getting under way, this field will become an important factor in State production a little later this year. This new field is the scene of feverish activity with a total of 47 derricks erected up to the present time exclusive of semi-

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S	T	R	Depth	Status
California Western Oil Co., No. 1 Elkins, Ventura Co.	28	4	19	2,951	suspended
Exline, Emma, No. 1 Saticoy, Ventura Co.	33	3	21	2,412	fishing
Standard, No. 5-9 Saticoy, Ventura Co.	10	2	22	4,590	hd. sd. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33	2	20	741	hd. sd. drilling
Star Pet. Co., No. 2 Canet, Ventura Co.	13	3	23	6,775	suspended
Bolsa Chica, No. 1 Temescal, Ventura Co.	4	4	18	690	hd. sd. drilling
The Texas Co., No. 1 Hueneme, Ventura Co.	.....			.....	location
Miley, E. J., No. 2 Casitas, Ventura Co.	12	3	21	785	suspended
Shell, No. 1 Marr, Simi	31	3	17	1,440	hd. sd. drilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21	4	22	3,471	br. sh. drilling
Continental, No. 2 Sulphur Mountain, Ventura Co.	22	4	23	4,192	br. sh. drilling
Milham Explt'n., No. 1-A Buttonwillow, Kern Co.	8	28	23	4,662	gas well
Milham Explt'n., No. 2 Buttonwillow, Kern Co.	8	28	23	2,730	gas well
Milham Explt'n., No. 3 Buttonwillow, Kern Co.	8	28	23	2,694	gas well
Milham Explt'n., No. 4 Buttonwillow, Kern Co.	6	28	23	2,670	gas well
Milham Explt'n., No. 5 Buttonwillow, Kern Co.	5	28	23	2,500	gas well
Milham Explt'n., No. 6 Buttonwillow, Kern Co.	8	28	23	2,676	gas well
Milham Explt'n., No. 7 Buttonwillow, Kern Co.	6	28	23	2,720	suspended
Milham Explt'n., No. 8 Buttonwillow, Kern Co.	16	28	23	4,500	abandoned
Milham Explt'n., No. 8-A Buttonwillow, Kern Co.	8	28	23	.....	location
Doheny-Stone, No. 1 Salisbury, Kern Co.	7	29	24	4,631	redrilling
South. Cal. Gas Co., No. 1 Buttonwillow, Kern Co.	4	28	23	4,272	suspended
South. Cal. Gas Co., No. 2 Buttonwillow, Kern Co.	27	28	23	Rig	suspended
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6	28	23	190	suspended
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21	26	22	4,760	testing
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36	27	23	Rig	rigging up
Pacific Eastern, No. 1 Union Ave., Kern Co.	6	30	28	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6	30	23	4,500	suspended
Pacific Eastern, No. 3 Union Ave., Kern Co.	6	30	28	4,443	gas shut in
Pacific Eastern, No. 5 Union Ave., Kern Co.	5	30	28	4,991	suspended
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23	32	29	3,300	br. sh. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24	29	29	945	gr. sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29	29	30	3,841	suspended
Delzel, S. J., No. 1 Delzel, Kern Co.	4	28	27	3,460	gr. sd. drilling
Elmer Oil Co., No. 1 Shafter, Kern Co.	8	28	25	5,504	fishing
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33	29	26	Rig	suspended
Standard, No. 1 San Emidio, Kern Co.	35	11	22	3,793	fishing
Union, No. 1 San Emidio, Kern Co.	5	10	21	2,090	to abandon
Currency Pet. Co., No. 1 Vineyard, Fresno Co.	28	21	14	950	bl. sh. drilling
Union, No. 1 Huasna, San Luis Obispo Co.	34	32	15	3,232	redrilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12	32	14	2,880	set pipe
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7	31	21	3,600	br. sh. drilling
Dollar Oil Co., Well No. 1, San Luis Obispo Co.	13	32	22	Rig	rigging up
Sequoia Oil Co., Well No. 2, San Mateo Co.	15	7	5	1,605	suspended
Sunset Pacific, No. 1 Saratoga, San Mateo Co.	13	7	4	Rig	suspended
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9	3	3	1,535	hd. sd. drilling
Foster & Hammill, Well No. 1, Alameda Co.	21	3	3	460	hd. sd. drilling
R. Y. Hanlyn, Well No. 1, Alameda Co.	3	5	2	360	suspended
Shell, No. 1 Guadalupe, Santa Barbara Co.	36	10	35	1,620	hd. sd. drilling
Shell, No. 2 Goleta, Santa Barbara Co.	36	5	31	632	cemented
Standard, No. 1 Point Conception, Santa Barbara Co.	.....			191	sd. drilling
Standard, No. 1 Point Arguello, Santa Barbara Co.	X	7	35	957	br. sh. drilling
Bankline Oil Co., No. 1 Mesa, Santa Barbara Co.	X	4	27	455	br. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36	10	34	Rig	rigging up
Petroleum Securities, No. 1 Santa Ynez, Santa Barbara Co.	.....			.....	location
Tepesquit Oil Co., Well No. 1, Santa Barbara Co.	9	9	32	2,710	suspended
Becker, Geo. F., No. 1 Summerland, Santa Barbara Co.	33	4	25	3,090	suspended
Channel Oil Co., Well No. 1, Santa Barbara Co.	29	4	27	6,304	cleaning out
Continental, No. 1 Carpenteria, Santa Barbara Co.	33	4	25	3,461	sd. sh. drilling
Colusa Oil Co., Well No. 1, Colusa Co.	31	15	4	380	redrilling
Nuna Oil Co., Well No. 1, Colusa Co.	19	15	5	400	suspended
Superior Oil Co., No. 1 Calivada, Colusa Co.	31	15	4	1,011	suspended
North Counties Oil Co., Well No. 2, Humboldt Co.	36	2	1	2,201	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6	2	1	3,041	redrilling
Kuhns, H. L. Well No. 1, Merced Co.	9	12	9	1,570	suspended
Angiola Oil Co., No. 1 Angiola, Tulare Co.	27	22	23	3,425	hd. sd. drilling
Shell, No. 1 Dudley, Monterey Co.	15	22	9	Mtl.	building rig
Brown Oil Co., No. 1 Parkfield, Monterey Co.	.....			.....	location

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28	2	14	130	sd. drilling
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32	3	14	Rig	rigging up
West. Drlg. & Prod. Co., No. 1 Manhattan, Los Angeles Co.	30	3	14	105	sd. drilling
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26	1	12	4,420	suspended
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25	1	12	3,937	suspended
Associated, No. 1 Taylor, Los Angeles Co.	33	2	12	6,166	abandoned
Rio Grande, No. 1 Downey, Los Angeles Co.	34	2	12	2,755	hd. sd. drilling
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17	3	13	Mtl.	building rig
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13	3	13	5,333	suspended
Richfield, No. 1 Maywood, Los Angeles Co.	13	2	13	3,970	sd. sh. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19	1	17	2,982	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25	3	17	1,500	suspended
Pomona Oil Co., Well No. 1, Los Angeles Co.	32	1	8	1,085	hd. sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19	2	10	4,820	suspended
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9	2	10	3,434	recemented
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32	5	17	3,127	test oil sand
The Texas Co., No. 1 Anaheim, Orange Co.	35	4	10	3,627	hd. sd. drilling
Bastanchury Ranch Co., Well No. 1, Orange Co.	21	3	10	Rig	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21	6	10	3,482	suspended
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18	6	10	4,430	fishing
West. Drlg. & Prod. Co., No. 2 Newport, Orange Co.	18	6	10	Mtl.	building rig
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23	7	3	975	fishing
Hement Pet. Co., No. 1 Ward, Riverside Co.	9	5	1	3,232	hd. sd. drilling
Davenport Oil & Gas Co., No. 1 San Marcos, San Diego Co.	30	12	8	892	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25	12	2	1,654	hd. br. lime

wildcat projects under way in areas obviously beyond the productive limits at Lawndale. The large amount of work under way in this district at the present times does not necessarily reflect the importance of the Lawndale Field from a production standpoint as only one well is producing at the present time and consequently it is unknown just how high daily production will go. Approximately 200 feet of oil sand has been opened up in the first commercial producer in this field and it is logical to assume that a zone of this thickness would be capable of reaching a relatively high peak if intensely developed. The situation at Lawndale, however, is peculiar in that practically all of the development work under way at the present time is centered in a congested area in the town lot section east of the discovery well. Very few projects are under way in the other three points of the compass where acreage is held in large blocks.

Elwood

The Barnsdall and Rio Grande finished their sixth successful completion in the prolific Elwood Field of Santa Barbara County a few days ago when No. 5 Bell Luten blew in under a terrific pressure flowing 6,000 bbls. of 34.9 gravity oil daily. This well cost the Barnsdall's field department more worry than any of the previous five completions. Extreme difficulty was experienced during the course of work because of the terrific gas pressure encountered and it became necessary at one time to reinforce the drilling fluid with hematite and baroid in order to prevent a premature blowout. Officials of the company had decided to open up about 200 feet of formation in conformity with its policy of progressively drilling a little deeper with each new completion but the extreme gas pressure encountered prevented a realization of this desire as it was found impossible to open up more than 175 feet of oil sand with safety. No. 5 Bell Luten, the Barnsdall and Rio Grande's latest completion at Elwood, is the furthest well north and west in the field and its completion extends the productive limits along the ocean front 600 feet. No. 6 Bell Luten, 600 feet north of No. 5, is being rigged up and spud will be made within the next few days. The next producer in this field, barring the development of mechanical trouble, will be No. 3 Doty, located approximately 800 feet east of No. 2 Doty, which is flowing 4,025 bbls. daily from 3,490 feet. None of the various wells drilling out beyond production in the vicinity of the Elwood Field showed any change for the better during the week and it is almost definitely certain that the Barnsdall and Rio Grande control the total amount of potentially productive acreage which, incidentally, looks like about 200 acres at the present time. It is unknown just how much production will be developed in the Elwood Field during the current year but I am rather inclined to believe that the Barnsdall and Rio Grande interests will pursue an aggressive but conservative drilling program. As the situation looks at the present time extreme difficulty may be anticipated in holding down production in view of the fact that none of the wells completed has shown any tendency to settle and Elwood may produce in excess of 10,000,000 bbls. of crude its first year. It is axiomatic of course that eventually producing wells at Elwood will decline but if this period is delayed for another six months the Elwood Field may be producing 50,000 bbls. a day unless property owners grant a moratorium in development work.

Long Beach

Although there are still 146 drilling wells under way in the Long Beach Field, many of which will be completed before the current year draws to a close, daily production at Long Beach is gradually but surely declining and destined to reach a much lower level. There were no outstanding completions finished at Long Beach during the past seven-day period as all of the five wells put on production registered a small initial. The Shell's No. 8 Andrews was the best completion listed as it came in flowing 1,065 bbls. daily from 7,002 feet. No. 10 Hutton, on the other hand, was a dud at 7,500 feet and it only made 150 bbls. per day. It failed to result in a natural flow and was consequently put on a compressor. The Shell wound up the week by finishing No. 13 Cresson doing 565 bbls. daily from 7,368 feet. The Hancock Oil Co.'s No. 12 Signal was finished in the deep sand during the early part of the week at 6,544 feet and is being listed as a satisfactory completion doing 545 bbls. of 28.6 gravity oil and 3,200,000 feet of wet gas daily. The Painted Hills Oil Co. has just finished No. 2 Schwinn doing 425 bbls. of 29.2 gravity oil daily from 6,470 feet.

Seal Beach

Operators in the Seal Beach Field of Los Angeles Basin have been sitting tight for more than a year and are expected to continue to refrain from unnecessary drilling operations until general conditions improve. The Marland, Associated and Standard, which control the entire productive acreage in the Seal Beach Field, exclusive of the Alamitos Heights town lot area, have only undertaken the minimum amount of development work necessary to fulfill lease obligations. None of this trio is expected to engage in additional drilling for the present and this field is consequently not expected to be an important factor in state production during 1929. However, this field is being held in reserve and will be heard from at a later date when the price of crude is commensurate with its intrinsic work. Daily production at Seal Beach has held relatively stable during the past several months and while several new wells are under way at the present time their completion should not disturb the existing equilibrium as the new production should merely offset the normal decline in former producers. The Marland is drilling two new wells on the Bixby lease and is redrilling and deepening five other former upper zone producers on the Bixby and Selover properties. The Standard and Associated are likewise running two strings of tools in addition to Nos. 2, 4, 8 and 12 on the San Gabriel lease, which the former is redrilling and deepening to the lower zone.

Rosecrans

The Rosecrans Field of Los Angeles Basin has also reflected commendable curtailment in drilling operations on the part of the Barnsdall and Union, each of which has restricted development work. Both are running two strings of tools at the present time in order to fulfill lease requirements and will probably continue this conservative development work at least during 1929. The Barnsdall has finished several substantial deep zone completions during the past few months and is consequently the largest single producer in this field at the present time. Brea Olinda is another field which has reflected curtailed drilling operations during the past few years and consequently completions have been rather few and far between. There are six drilling wells under way in this area at the present time, the deepest being Nos. 44 and 45 of the Brea Canyon Oil Co., which are down 5,881 and 6,250 feet, respectively. The Birch Oil Co., Union, Shell and Fullerton Oil Co. are each running one string of tools. No. 18 Orange of the Shell, incidentally, has been tentatively selected as a deep test.

Richfield

Development work in the Richfield district was recently stimulated by the spudding in of four new wells, two of which were started by the Continental Oil Co. on the Richfield and Winann leases. The other latest spuds in this field were the Superior Oil Co.'s No. 3 Etchendy and George W. Johnson's No. 1 Stein. The Continental and Winann Oil companies are jointly developing the latter's lease at Richfield and will follow a similar arrangement in the Lawndale Field where the Winann interests hold a number of drill sites. No. 1 Alexander and No. 1 Phoel at Lawndale are both well under way with the Continental in charge of development. The Winann Oil Co., headed by J. B. Stoddard and Fred Delaney, also has production in the Cat Canyon Field of Santa Barbara County, where a new well is rapidly nearing completion. The drilling program in this field calls for a total of 20 wells. The Standard successfully completed No. 3 Whitehead in the Montebello Field during the early part of the past week and this new well is pumping 152 bbls. of 23.4 gravity oil daily from 3,825 feet, the hole having been finished with a 9-inch oil string carrying 95 feet of shop perforated. The next two completions in this district should be No. 17 Monterey of the St. Helens Petroleum and No. 2 Stocker of the Standard, both of which should be tanking oil shortly. The California Eastern Oil Co.'s No. 1 Pollard in the Potrero Field, which is located between the Rosecrans and Inglewood Fields on the Newport-Beverly sheer zone, is nearing the critical stage, and if ditch showings are any criterion, a part of the town lot area may ultimately be found productive, although it is proble-

(Continued on Page 110)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	928,704
Diesel and gas oil	.....	.....	.....	.....	247,750	259,132
Gasoline	523,204	74,743	646,601	92,372	2,261,177	1,429,180
Coastwise—						
Crude oil	878,590	125,513	469,681	67,097	2,906,423	1,620,411
Fuel oil	189,739	27,106	516,782	73,826	1,746,507	1,923,187
Diesel and gas oil	7,075	1,011	16,924	2,418	88,022	170,723
Gasoline	284,710	40,673	101,969	14,567	1,168,581	1,251,186
Kerosene	.....	.....	.....	.....	1,139	13,050
Naphtha distillate	.....	.....	.....	.....	.....	30,500
Exports—						
Crude oil	135,625	19,375	62,337	8,905	342,865	252,882
Fuel oil	407,030	58,147	380,933	54,419	1,927,587	2,801,543
Diesel and gas oil	.....	.....	37,455	5,351	202,615	304,637
Gasoline	202,397	28,914	140,723	20,103	1,230,018	551,195
Kerosene	181,735	25,962	63,834	9,119	397,600	449,401

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Crude oil	.....	.....	.....	.....	.....	.....
Fuel oil	.....	.....	.....	.....	.....	.....
Diesel and gas oil	.....	.....	.....	.....	.....	167,695
Gasoline	79,142	11,306	100,362	14,337	333,198	154,238
Kerosene	.....	.....	.....	.....	.....	.....
Lubricants	.....	.....	.....	.....	.....	69,854
Coastwise—						
Fuel oil	92,518	13,217	73,152	10,450	305,487	431,102
Diesel and gas oil	11,983	1,712	4,023	575	16,006	1,478
Gasoline	40,142	5,735	29,923	4,275	347,016	326,158
Kerosene	2,504	358	.....	.....	6,784	34,733
Exports—						
Crude oil	.....	.....	.....	.....	71,453	20,073
Fuel oil	51,080	7,297	.....	.....	51,080	333,325
Diesel and gas oil	9,946	1,421	.....	.....	62,815	.....
Gasoline	.....	.....	88,164	12,595	546,954	582,447
Kerosene	.....	.....	.....	.....	68,030	80,391
Lubricants	.....	.....	.....	.....	13,693	.....

HOWARD COUNTY, TEXAS, OPERATORS EXTEND PRORATION THREE MONTHS

FORT WORTH, Tex., Feb. 2.—Howard County operators, meeting before the Texas Railroad Commission at Dallas, unanimously agreed to extend proration in the Roberts and Settles areas three more months after February 15 but were divided on the question of increasing the allowable production of the district above 35,000 bbls. daily. It is probable the commission will eliminate swab tests on southern Howard County wells in the future and when its next order is issued the two pools may be segregated for proration purposes. Several of the operators desired a six-months extension to the proration order but the majority desired three months because of the changing conditions in that area.

Fear of water encroachment was voiced by several company representatives in opposing an increase in allowable production. Warner Clark of the California Co. told his hearers it would not be fair to other West Texas producers to increase the output of the Roberts-Settles areas.

E. E. Andrews, umpire in that district, estimated that the potential of the area was 80,000 bbls. including those wells that made their proration gauge on a swab test. The swab test, however, is considered an artificial test and it is significant to note that not a single well has made its allowable production on the pump after being gauged with a swab test. Mr. Andrews estimated that 60,000 bbls. daily is nearer the true potential production of the two pools. Actual production at this time is close to 40,000 bbls. daily, including that production from the old producers in the shallow Chalk Pool.

Some of the producers with crude contracts to fill and unable to do so by producing their wells under proration rules asked that the allowable production be increased to 50,000 bbls. daily. Several others were in favor of increasing the production to an extent but did not state any definite figure.

In a letter addressed to the commission, W. S. Farish, president of the Humble Oil & Refining Co., was opposed to an increase on the ground that too much oil is going to storage in West Texas at this time and if increases are made in various pools the situation will grow worse. The position of his company was to go along with the majority's will but he said the Humble company did not desire to put oil in storage in West Texas at this time under any condition.

Lon A. Smith, one of the commission members, and R. D. Parker, chief supervisor of the oil and gas division of the commission, presided at the meeting. An order is expected to be issued shortly.

The engineers' committee appointed to study water conditions in the areas and other conservation practices made the following report:

"We recommend that:

"1. The operators furnish the Railroad Commission deputy supervisor in Howard County with individual daily well gauges whenever practical, showing oil and water production separately.

"The committee has not been able to collect enough authentic production data to determine the relative increase or decrease in oil and water under uniform pumping conditions.

"2. Swabbing of wells for tests be discontinued.

"Observation has convinced this committee that in individual cases swabbing has been detrimental. Furthermore, the swabbing method of obtaining potential production or well capacity is not a correct basis of comparing production, since pumping is the regular method of producing the wells.

"We recommend as a substitute for the swabbing method, that the tests be made by pumping each well one hour each calendar month and that the time of testing be set by the proration umpire in charge.

"3. Maximum diameter for well tubing be 3-inch inside diameter.

"4. No drilling be continued after cementing casing until a successful water shut off has been obtained.

"We also recommend that the plug be drilled out and formation found in place, the hole bailed dry and allowed to stand for 12 hours after which period the test be witnessed by the Railroad Commission deputy, or in his absence by an agent of the offset operator. In case of a disagreement between these two, the well will be shut down pending the return of the Railroad Commission deputy."

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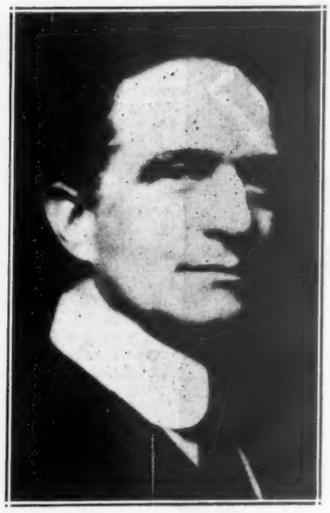
The Largest Exclusive Wire Rope Plant in America

New Plant of Hooker Company Is Put Into Operation in Tacoma

The Hooker Electrochemical Co. has just completed in Tacoma, Wash., one of the largest chemical plants in the West and has put it into operation in the manufacture of caustic soda and liquid chlorine. The latter product is consumed mainly by manufacturers of pulp and paper, making convenience in distribution an important consideration in selecting a site for the plant. Caustic soda's market is largely in foreign countries and California, making favorable shipping facilities by water important.



Elon H. Hooker

For 25 years the company has been operating in Niagara Falls, N. Y., a plant which starting on a small scale has become one of the largest chlorine producers in the United States. Some of the executives who through years of experience have become skilled in the handling of various products have recently been transferred from Niagara Falls to Tacoma.

At the Niagara Falls plant about 20 different chlorine products are made, and at the Tacoma plant it is the intention of the company to make such of these as the demands in the West may warrant. At the start most of the chlorine will be shipped in liquid form, which is produced by compression and refrigeration. Caustic soda is shipped as solid fused material, as flake material or as liquid. The two principal raw materials in the process of making these products are electric power and salt. An electric current is passed through a brine solution made from common salt (NaCl), breaking up the salt into its two elements, sodium (Na) and chlorine (Cl).

Chlorine will remain in liquid form so long as it is held under pressure, but when the pressure is released it reverts to the gaseous condition. Consequently liquid chlorine is shipped in containers specially designed for the purpose. A second product which will be made from chlorine is muriatic acid, a combination of chlorine gas with the hydrogen which is also produced in the process of decomposing the brine solution. Muriatic acid when shipped in small quantities is placed in glass carboys. Large quantities are shipped in rubber-lined tank cars.

The president of the Hooker Electrochemical Co. is Elon H. Hooker, who has occupied that position since the organization of the company. His office and that of the sales department and the general administrative branches are in New York. There are three vice presidents, Willard Hooker, Harry M. Hooker and E. R. Bartlett. Harry M. Hooker is also sales manager. Mr. Bartlett has the additional position of works manager, having charge of both the Niagara Falls and Tacoma plants, R. L. Murray is superintendent of the Niagara Falls plant. J. M. Rowland, chief engineer; A. H. Hooker, technical director, and L. A. Ward, secretary, are the other officers of the company. Albert Hooker, Jr., is sales manager for the Tacoma plant and J. A. Flynn is superintendent of the Tacoma plant.

UPS AND DOWNS OF CRUDE PRODUCTION

(Continued from Page 32)

Winkler County increased from 3,109,523 bbls. to 58,898,863 bbls., a gain of 55,789,340 bbls., and the Yates Pool in Pecos County increased from 5,250,173 bbls. in 1927 to 22,673,875 bbls. in 1928, a gain of 17,423,702 bbls.

In Oklahoma the St. Louis-Pearson-Maud area increase from 1,406,020 bbls. in 1927 to 21,878,954 bbls. last year, a gain of 20,472,934 bbls., and the Little River Pool in Oklahoma went from 5,144,014 bbls. in 1927 to 24,447,158 bbls. in 1928, a gain of 19,303,144 bbls. The five areas, Long Beach, Hendricks, Yates, St. Louis-Pearson-Maud, and Little River, had an increase of 132,309,899 bbls. in 1928, an average increase of about 361,500 bbls. for every day in the year.

The greatest decline last year was in the Seminole City, Oklahoma, Pool, which dropped from 47,039,644 bbls. in 1927 to 18,237,004 bbls. in 1928, a falling off of 28,809,640 bbls. Bowlegs, Oklahoma, declined 12,848,837 bbls., and Smackover, Arkansas (heavy), 9,659,825 bbls.

All of the fields that showed a decline last year may be expected to remain on the toboggan unless deeper pays are uncovered, and some of the pools among the 17 showing an increase will suffer a slump this year. In fact, among the 17, the St. Louis-Pearson-Maud area, the Yates Pool, Santa Fe Springs and Howard County, Texas, are the only ones that seem assured of a large increase in 1929 over 1928. The Bradford-Allegany Field in the East and the Allen area in Oklawill show a smaller increase. Allen did not assume importance until the last half of 1928, and it has not reached its peak. The Bradford-Allegany area will produce more each year until the greatest possibilities of repressuring have been passed, after which its decline will be steady. The greatly increased production expected this year will come from the abovementioned pools together with Sedgwick County, Kansas; recently opened pools in California; the Oklahoma City area and Mission in Oklahoma and the deep Pennsylvanian horizon in West Texas.

Very Important Area

The last mentioned area is believed by some oil men of sound judgment to offer one of the big production possibilities of the next few years. The discovery well which found oil at a depth of 8,525 feet in Reagan County is looked upon as good for some 3,000 to 5,000 bbls. a day, but it has never produced anywhere near the smaller amount because the well has over 2,300 feet of open hole and the tremendous pressure is forcing most of the oil into the walls of the hole, where it is lost in the shales and sands that lie between 6,184 feet, where 5 3/16-inch pipe was set, and the bottom.

The well has steadily increased in production since it came in in December, 1928, and when this was written was making over 1,700 bbls. a day. The reason for the steady increase is that the wall of the open hole is taking less of the oil as time passes, thus permitting more of the production to reach the surface. The oil, which is accompanied by about 18,000,000 feet of gas per day, has a gravity of 56 degrees, making it almost as light as gasoline. That the same sand from which the first well is producing underlies a large territory and that it will be found at a much less depth in some parts of West Texas is an opinion that will stimulate exploration work. Already there are a half dozen scattered tests drilling in search of this deep sand.

One pool was opened and another developed in Michigan last year.

NOT LIKELY TO PASS OIL LEGISLATION

(Continued from Page 32)

in the empire of West Texas, its underground supply of oil and gas.

"This measure is virtually a re-enactment of the oil and gas laws as they now appear on the statute books. There are, of course, additions that will give the Railroad Commission power to enforce its rules and regulations and providing for proper penalties where violations of same warrant or demand such penalties. The conservation or proration clauses are strengthened by this bill. As the law now is, it would be very easy to disrupt or tear down the entire proration structure in Texas. The filing of the injunction suit against the Railroad Commission of Texas by Cranfill and Murchison affecting proration in Winkler Field brings the subject of proration to a point where it is necessary that adequate machinery be placed in the hands of the Railroad Commission if we are to have proration at all.

Consumption and Production

"The chaotic condition of the oil industry can be laid at the doors of the industry itself. Until consumption and production balance themselves there is little likelihood that the business will reach the stable condition that such an industry as this deserves. Conservation or proration in our opinion is the only means by which we may be able to prevent a tremendous underground waste of this great natural resource. Under the present laws it is entirely too easy for this structure to be torn down.

"We believe some state should take a lead—Texas has an opportunity to set that example and when proper statutes have been enacted for Texas, the Oil and Gas Bureau of the West Texas Chamber of Commerce plans to present to proper authorities in Oklahoma an appeal for the enactment of legislation that will enable the industry to take another step forward in its effort to balance production with consumption and to prevent a tremendous underground waste as well as to prevent a huge increase of earthen storage.

"The bill is not designed, as some would attempt to lead others to believe, to make the Railroad Commission all powerful in the enforcement of rules and regulations governing the oil industry, but is one that merely gives them authority to carry out the rules and regulations which have already been written into the statutes. This bureau and the West Texas Chamber of Commerce craves the co-operation of independents and majors alike in its efforts to place the oil industry where it should be and to bring out of chaos that now exists a stabilized business."

Chairman Gilmore's Statement

Clarence E. Gilmore, chairman of the State Railroad Commission, said:

"The bill was written by members of the commission and employes of the commission, and is substantially a re-enactment of the conservation law which has been in effect for more than 10 years, except for certain clarifications which the light of experience has dictated, or to correct omissions occurring during the recodification of the laws of the State.."

After the bill was prepared, Chairman Gilmore said, copies of it were sent to every individual and company that the commission could think of in the business in an effort to get their reaction. As a result of this, representatives of several major companies and also independent producers came to Austin and discussed the measure. The chief change they suggested was the addition of section J, which Gilmore declared he believed desirable, but not essential to the measure. Section J, which permits voluntary conservation agreements in a single pool, has drawn the chief fire of opponents to the bill. It provides that the commission can establish rules for such proration in a single pool, after a hearing, held either on its own motion or at request of the majority of the acreage owners in a pool. In the discussion on this paragraph, Gilmore pointed out that the majority feature applied only to initiation of a hearing, and not to the rules to be promulgated, and suggested that it could properly be changed to allow a hearing on the application of any citizen at interest.

He pointed out that the infringement of any rights of any producer by the commission was not only inherently subject to review by the courts but that was expressly provided by the bill.

During the hearing, the bill was amended by inserting a provision in section J that nothing in it would abridge the right of an owner of property for separate development. Chairman Gilmore briefly recounted the history of proration in West Texas fields, pointing out that both practical operators and technologists had testified under oath that the measures taken, after hearing, and consultation with the industry, had added 50 to 100 per cent to the amount of oil which would eventually be taken from the Winkler Field alone.

General Wolters' Opinion

Gen. Jacob F. Wolters of Houston, representing The Texas Company, pointed out that he appeared in response to a request from the committee to the company for an expression on the bill. General Wolters said the company did not wish to record itself with opposition to the bill, and confined himself to certain objections to features in the bill. One was a protest against jurisdiction in Travis County in court actions which might arise in connection with the commission's exercise of authority under the bill. Another had to do with features of the plugging provision. A third had to do with section H, empowering the setting up of an oil-gas ratio, General Wolters asserting there would be as many different ideas of a proper oil-gas ratio as there were production engineers.

As to section J, he declared that the company saw no objection to voluntary co-operative development in single pools where the operators are unanimously in agreement and where productive caliber rather than size of acreage of the properties was the governing factor.

He was followed by W. S. Farish, president of the Humble Oil & Refining Co., who stated that his company was in favor of the bill. The bill was not one which his company would draw, if it had the power, because it did not go far enough. However, the bill had merit and would constitute an improvement, as it was a step in the right direction. Mr. Farish said the single pool was the natural unit of competition; that the nature of oil made it necessary that operators in a single pool be given the right to co-operative development; that some element of compulsion on rules drawn for such action was necessary to prevent anarchistic conditions of overproduction, because human nature was such that selfish interests would outweigh the public good with some operators in a pool even though the overwhelming majority were agreed on the proper measures.

Unrestrained overproduction, he said, was hurtful to both the industry and the public, to the former because it meant loss of operations and threatened existence and to the latter because it meant waste of actual oil.

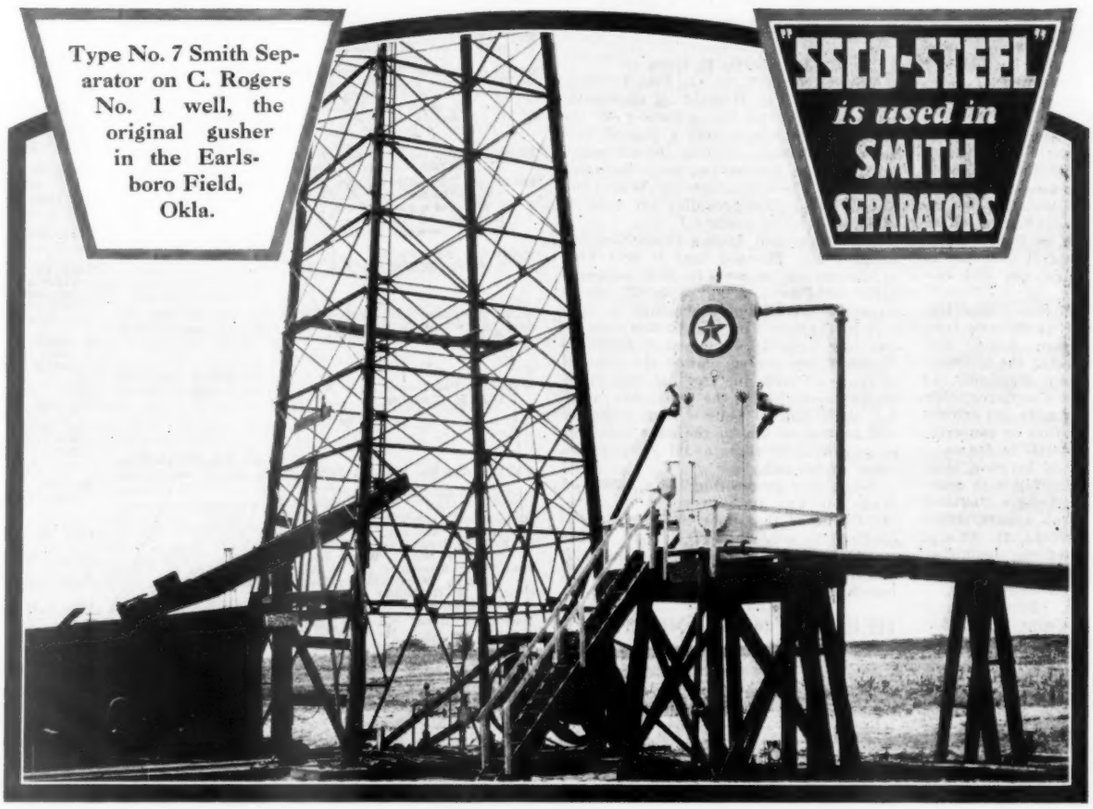
President Farish's View

Present proration in West Texas is being attacked in the courts, Mr. Farish said. He expressed his belief, and the belief of his company, that if these were successful, and nothing done to put up a system in its place, disaster would strike the oil industry in Texas and result in handing over to the world Texas oil at sacrifice prices.

"Against the dangers that we foresee, the Humble company has raised its voice on previous occasions," he said. "If this suit (against proration) prevails and this Legislature passes no law adequately meeting the situation, we think disaster faces the industry in Texas. If catastrophe results from this condition, then responsibility will not rest upon the Humble Oil & Refining Co. This responsibility will rest squarely upon those who are now opposing the bill."

Mr. Farish discussed the overproduction now existing in Oklahoma, Kansas, California and Venezuela. Asked the effect of Venezuela importations, he said they were more than offset by American

"If it's worth drilling for, it's worth saving"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HOUSTON FORT WORTH SHREVEPORT LOS ANGELES

export. He said importations of crude oil from Venezuela might soon be cut because one unit was building a 110,000-bbl. refinery on the coast of that country. However, this year, that country will provide 8,000,000 bbls. more gasoline to compete with Texas and other American oil. Mr. Farish's statement that price concessions over coal had not been sufficient to displace coal and widen the demand for oil was questioned by Underwood Nazro, chief officer of the Gulf company in the State. Mr. Nazro pointed out there also was an overproduction of coal, and asserted that both industries were suffering from an economic question which legislation would not help.

Opposition Presented

Opponents of the bill were introduced by Tom Cranfill of Cranfill & Reynolds, Dallas and Cisco, and included Frank Kelsey and Finis Morgan, Fort Worth.

Transcontinental Oil Co. was also registered by its representative as against the bill, while a representative of the Phillips Petroleum Co. indicated objection to a feature which he feared would give the commission control over use of Panhandle gas in natural gas and carbon black plants.

In addition to the individual operators against the bill, most of whom came from Cisco, Eastland and San Angelo and Luling, resolutions opposing the bill were introduced from the Cisco, Eastland and San Angelo Chambers of Commerce. Mr. Cranfill stated that they were not against adequate and fair proration or conservation, but objected to the bill as drawn.

The difference in stand between independents who "favored the bill with modifications," and those who are "against it as it now stands" was apparently so small, that Representative J. D. Avis of Wichita Falls, member of the committee, suggested the two groups get together and agree on a bill.

Fleetwood Richards, former State Senator from Caldwell County and attorney, spoke for the opponents, charging it was not a conservation but an antidrilling bill, and declaring it gave too much power to the Railroad Commission. Part of his talk was directed at making a land owner responsible for plugging dry holes, provided in the present act, but omitted from the new one.

John Young of Dallas, attorney for the Atlantic Oil Producing Co. expressed his company's feeling that present laws were enough. He said penalties for failure to observe rules of the commission should be restored.

Charles Harty, Dallas attorney, spoke in opposition to features of the bill, most of which are in the present law. He said he was appearing for himself and for clients, Turman & Maxwell and Turman & Brown of Fort Worth.

T. F. Hunter of Wichita Falls, said that previous to coming to Austin and studying the bill he had wired protests against it. He said that with the amendment offered to Section J, he was now entirely in favor of it and withdrew his protests. However, he suggested the removal of the feature giving jurisdiction in enforcing the rules to the Travis County District Court which every speaker condemned. Mr. Hunter declared that most of the features which the three lawyers who were heard had objected to and presented hypothetical cases of injustice had been in the law for 10 years without bother to him or any other independent operator. As a practical oil man he insisted that they were immaterial.

Feared Outside Regulation

Dan Harrison, of Houston, said:

"Under the guise of conservation and proration, and that under the guise of waste, an attempt is being made to control the industry through the Railroad Commission. I believe no bureau could control the oil industry and further that some of the commission's power should be taken away. We don't want our oil business regulated by some boy inspector given a job by political favoritism."

He believed no legislation was necessary in the oil industry.

"The Railroad Commission and no other bureau of the government can guide an industry as big as the oil business," he said.

Mr. Harrison concluded his argument by stating that no one knew whether oil would be worth anything in 20 years, in view of the research work being done to develop new fuels.

Dr. A. R. Shearer of Barbers Hill, former member of the Legislature, said coastal operators are opposed to the bill. In his section, the "little fellow" had done the development work and the bill appeared to give the big companies control.

HEARING ON OIL TARIFF IS SET FOR FEB. 20-22

By Charles E. Kern

WASHINGTON, D. C., Feb. 1.—Representative E. B. Howard, of Oklahoma, today brought to the attention of the House of Representatives a general survey of conditions affecting the oil industry which he believes warrant favorable action by the committee on Ways and Means on his bill providing for a tariff of $1 a barrel on crude oil.

The Ways and Means Committee has notified Mr. Howard that it will hear arguments in respect to this proposed tariff on February 20, 21 or 22, which days are set aside for hearings in relation to the free list. Up to this time no one has formally expressed a desire to appear either for or against the removal of crude oil from the free list, but information received by the Oklahoma member leads him to believe that witnesses will appear on one of the days indicated to present their views as oil producers in favor of his bill.

When this proposition for a tariff on crude oil was first proposed its advocates believed that their efforts would be confined to crude oil. It is now understood that they will include products of petroleum in their campaign for tariff legislation.

HERE'S A NEW ONE IN DRILLING OPERATIONS

HOUSTON, Tex. Feb. 4.—Drilling two separate wells on one location without skidding either rig or derrick is a novelty undertaken by the Vacuum Oil Co. in its Lockport Field at Lake Charles, La.

With the completion of No. 22 Miller last week, Vacuum drillers merely skidded the rotary 3 feet, lengthened the drive chain, and started a new hole, No. 22-A.

No. 22-A will be drilled to a 1,200-foot sand passed up by No. 22, which went to a sand at 4,339 feet, making a 1,200-bbl. well. When it is necessary to put the two wells on the pump they will be pumped from the same jack.

Lockport is owned jointly by Vacuum Oil Co. and Gulf Refining Co.

MEXICO'S PRODUCTION

NEW YORK, Feb. 4.—Production of crude oil in Mexico during the week ended January 26, averaged 100,571 bbls. daily, against 100,715 bbls. a day in the previous week. Light oil production averaged 44,857 bbls. a day, against 45,857 bbls. in the previous week, with heavy oil output 55,715 bbls. daily, against 54,857 bbls.

KANE DEEP GASSER

Well No. 3,737, producing 20,000 feet of gas from the Clarendon-Kane sands, was turned into a line feeding Lamont station on Saturday morning. Thus ended the famous deep test of the United Natural Gas Co., fourth deepest test well in the world, located at Lamont, about 3 miles south of Kane, Pa.

MACMILLAN EXPANDS

Macmillan Petroleum Corp. has purchased from Petroleum company a number of wells, lands and equipment at Long Beach, Signal Hill and Torrance for a consideration of $2,250,000, R. S. Macmillan, president of the company, announced. The acquisition includes 18 wells in Long Beach and 3 at Torrance having a combined production of 6,814 bbls. a day. Fourteen pieces of property were acquired at Long Beach and two at Torrance.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

Duffey & Silk's No. 1 Lovelace and Lockett, 1,056 ft. N and 640 ft. W of SE cor. Sec. 66, Blk. 70, H.&T.C. Sur. ..... Shut down 650 ft.

Exploration Co.'s No. 2 Hartgrove, 900 ft. S and 985 ft. E of NW cor. Johann Scheuch Sur. No. 240 ..... Rig.

Loyd Jones Co.'s No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878 ..... Drilled to 660 ft. and shut down

Posey's No. 1 Elvidge, C NW Sec. 39, H.&T.C.R.R. Sur. .. Shut down 300 ft.

CRANE COUNTY

Duffey and others' No. 4 Cowden, 1,320 ft. S and 440 ft. W of Sec. 18, Blk. X, C.C.S.D.&R.G.N.G. ..... Drlg. 2,130 ft.

Gulf Prod. Co.'s No. 6 McElroy, 330 ft. N and W of SE cor. Sec. 205, Blk. F, C.C.S.D.&R.G.N.G. Sur. ..... Location.

Gulf Prod. Co.'s No. 6 Waddell, C NW NE Sec. 12, Blk. B-25 ..... Drlg. 1,500 ft., potash and salt.

CROCKETT COUNTY

Barbara Oil Co.'s No. 1 Cox, 237 ft. S and 1,190 ft. E of NW cor. R. B. Dickenson Sur. ..... Show gas 1,000 ft.; shut down 1,290 ft.; flowing water.

Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur. .. Shut down 80 ft.

W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.R. Sur. ..... Shut down 1,719 ft.

W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,663 ft.; shut down 1,690 ft.; small oil show.

Moncrief, Donnelly et al's No. 2 Todd, C Sec. 53, Blk. UV, G.C.&S.F. Sur. ..... Location.

Moncrief, Donnelly et al's No. 3 Todd, C Sec. 55, Blk. UV, G.C.&S.F. Sur. ..... Location.

J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, I.&G.N.R.R. Sur., but in Vacancy Strip ..... Shut down 337 ft.

CULBERSON COUNTY

Hickey & Stiver's No. 1 C. O. Finley, 660 ft. N and 1,980 ft. W Sec. 20, Blk. 82 ..... Hole full water; small oil show 1,331 ft.; pipe set 1,418 ft.; total depth 1,680 ft.; trying to shut off water.

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 .. Shut down 530 ft.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down for casing 1,767 ft.

DAWSON COUNTY

Magnolia Petroleum Co.'s No. 1 W. A. Jetter, C Sec. 1, Blk. 34, Twp. 4n ..... Top salt 1,650 ft.; top lime 1,[illegible] ft.; set 10-in. casing 1,815 ft.; oil show 3,856 ft.; drlg. 4,[illegible] ft.; 3,500 ft. salt water at 4,000 ft.

EL PASO COUNTY

Sillix et al's No. 1 W. D. Malone, Sec. 46, James M. Day Sur. ..... Set 12½-in. casing 1,010 ft.; shut down 1,010 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, E.&T.C. Sur. .... Shut down 2,000 ft. for orders.

Cranfill & Reynolds' No. 1 Brown, 330 ft. S and E of NW cor. Sec. 4, W. E. Richardson Sur. ..... Drlg. 1,950 ft.

Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur... Drlg. 150 ft.

Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. ..... Drlg. 1,000 ft.

Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbitt Sur. No. 331 ..... Shut down 1,475 ft.

Gilman-McMurray & French's No. 1 Cleveland, 751 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Location.

Hucony Gas Co.'s No. 1 D. F. Maberry, 1,078 ft. S and 188 ft. W of NE cor. Elijah Bell Sur. No. 327 ..... Hole full salt water 2,735 ft.; top lime 2,960 ft.; pay 2,964-76 ft.; show oil and water; set 5-in. 3,195 ft.

Landreth Prod. Corp.'s No. 1 Cooper, 440 ft. SE of NE cor. NW Sec. 115, Blk. 1, H.&T.C. Sur. ..... Drlg. 1,280 ft.

Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land ..... Location.

Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ..... Location.

Thompson et al's No. 1 Newman, 1,320 ft. N and 660 ft. W of SE cor. of SW Sec. 44, Blk. 1, H.&T.B. Sur. ..... Top lime 2,810 ft.; good show oil 2,843-45 ft.

GAINES COUNTY

Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 ft. S and 330 ft. W of NE cor. Sec. 110, Blk. H, D.&W.R.R. ... Top salt 2,333 ft.; drlg. 2,854 ft. anhydrite.

GARZA COUNTY

Emerald Oil Co.'s No. 4 J. M. Boren, 330 ft. S and W NE cor. Sec. 136, Blk. 5, H.&G.N. Sur. ..... Drlg. 425 ft.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. .. Spudded and shut down.

Gibson & Johnson's No. 1 Mann, C NW Sec. 6, Blk. 33, T.&P. Sur. ..... Shut down 2,210 ft.

R. R. Penn's No. 1 Hughes-Johnson, C NW Sec. 45, Blk. 30, W.&N.W. Sur. ..... Underreaming 10-in. 1,117 ft.

Marland Prod. Co. et al's No. 7-A Settles, 2,310 ft. S and W of NE cor. Sec. 158, Blk. 29, W.&N.W. Sur. .. Location.

Meriweather Oil Co.'s No. 2 McDowell, 1,492 ft. N and 150 ft. E of SE Sec. 35, Blk. 34, Twp. 2s, T.&P. Sur. .. Hole full water 2,665 ft.; running 6-in. casing.

Sprague Oil Co.'s No. 4 Roberts, 1,650 ft. S and 330 ft. E of NW cor. Sec. 156, Blk. 29 ..... Drlg. 2,865 ft.

World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 ..... Drlg. 750 ft.

White Eagle Oil & Ref. Co.'s No. 1 Dunbar, C of NW Sec. 46, Blk. 34, Twp. 4s, T.&P.R.R. Sur. ..... Shut down 2,210 ft.

HOWARD COUNTY

Amerada Pet. Corp. and Rycade Oil Corp.'s No. 5 Dora Roberts, 330 ft. N and 2,310 ft. W of SE cor. Sec. 128, Blk. 29 ..... Pay 2,968-89 ft.; 2,000 ft. of oil.

American Maracaibo Co.'s No. 1 Settles-D, 330 ft. S and 1,650 ft. E of NW cor. Sec. 158, Blk. 29, W.&N.W. R.R. Sur. ..... Location.

American Maracaibo Co.'s No. 4 Settles-C, 1,373 ft. S and 3,023 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s... Drlg. 760 ft.

Bristow & Merrick's No. 10 Hooks, 660 ft. S and 2,440 ft. E of NW cor. Sec. 140, Blk. 29, W.&N.W.R.R. Sur... Drlg. 1,475 ft.

California Co.'s No. 1 Settles, 2,310 ft. N and W of SE Sec. 158, Blk. 28, W.&N.W. Sur. ..... Coring 2,380 ft.

Cosden & Co.'s No. 2 Roberts-C, 1,540 ft. N and 990 ft. E of SE cor. Sec. 128, Blk. 29, W.&N.W.R.R. Sur. .... Drlg. 1,155 ft.

Coyle & Concord Oil Co.'s No. 6 D. Roberts, 1,650 ft. S and 150 ft. W of NE cor. Sec. 156, Blk. 29, W.&N.W. R.R. Sur. ..... Rig.

Cranfill & Reynolds' No. 1 Kloh-Rumsey, 353 ft. N and 150 ft. W of SE cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Location.

Empire Gas & Fuel Co.'s No. 2 Clay, 785 ft. N and 1,570 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur... Drlg. 960 ft.

F. H. E. Oil Co. et al's No. 7-B Dora Roberts, 330 ft. S and E of NW Sec. 137, Blk. 29 ..... Drlg. by tools 2,600 ft.

F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Shut down 250 ft.

F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 ..... Set 6-in. casing 2,930 ft.; shut down.

Green Oil & Ref. Co.'s No. 6 H. R. Clay, 1,315 ft. N and 1,070 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Set 6⅝-in. casing 1,585 ft.

Green Oil Co. et al's No. 1 J. W. Furrh, C SW cor. Sec. 11, Blk. 31 ..... Top lime 2,100 ft.; set 6-in. casing 2,865 ft.; shut down 3,502 ft.

Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ..... Rig.

Group 1 Oil Co. & Marland Prod. Co.'s No. 1 Overton, 1,650 ft. N and 2,310 ft. W of SE cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. ... Location.
Group No. 1 & Marland Prod. Co.'s No. 5 Settles, 2,310 ft. S and 330 ft. E of NW cor. Sec. 133, Blk. 29, W.&N.W.R.R. Sur. ... Drlg. 1,278 ft.
Group No. 1 & Marland Prod. Co.'s No. 6 Settles, 2,310 ft. N, 330 ft. E of SW Sec. 133, Blk. 29 ... Drlg. 502 ft.
Gulf Prod. Co.'s No. 5 Clay, 990 ft. S and 330 ft. W of NE cor. of their 320-acre lease, Sec. 155, Blk. 29, W.&N.W. Sur. ... Drlg. 1,548 ft.
L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ... Hole full salt water 1,475-1,505 ft.; top lime 1,325 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,257 ft. Plugged back to 3,000 ft. to shoot.

Howard County Oil Corp.'s No. 1 Kloh, 990 ft. S and 1,170 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ... Junked hole 1,005 ft.; skidded derrick 160 ft. west and drlg. 1,942 ft.

Hyer & Yates' No. 3 Clay, 990 ft. S and 2,310 ft. W of NE cor. Sec. 165, Blk. 29, W.&N.W. Sur. ... Drlg. 1,200 ft.
Laurel & Cosden's No. 8 Dora Roberts, 330 ft. W and 2,310 ft. N of SE cor. Sec. 136, Blk. 29 ... Cem. 6⅝-in. casing 2,938 ft.
Humble Oil & Ref. Co.'s No. 1 H. R. Clay, 990 ft. S and 330 ft. E of NW cor. Sec. 138, Blk. 29, W.&N.W. Sur. ... Location.
Humble Oil & Ref. Co.'s No. 2 Clay, 330 ft. N and 330 ft. E of SW cor. Sec. 138, Blk. 29, W.&N.W. R.R. Sur. ... Location.
Laurel & Cosden's No. 9 Roberts, 1,650 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Drlg. 2,895 ft.
Laurel Oil & Gas Co. and Cosden's No. 10 Dora Roberts, 990 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Drlg. 1,435 ft.
Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Rigging up standard tools 2,927 ft.; shut down.
Magnolia Pet. Co.'s No. 16-D Dora Roberts, 990 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Testing 2,550-60 ft.; pumping 7 bbls. daily.
Magnolia Pet. Co.'s No. 18 D. Roberts, 405 ft. N and 330 ft. E of SW cor. Sec. 135, Blk. 29, W.&N.W. ... Location.
Marland Prod. Co.'s No. 12 Clay-A, 250 ft. S and 1,533 ft. W of NE cor. Sec. 139, Blk. 29, W.&N.W. Sur. ... Location.
Marland Prod. Co.'s No. 2-C Chalk, 330 ft. S and 1,650 ft. W of NE cor. Sec. 140, Blk. 29 ... Shot with 30 qts. 1,760-80 ft.; cleaning out.
Marland Oil Co.'s No. 3-C Chalk, 660 ft. S and 2,440 ft. W of NE cor. Sec. 140, Blk. 29, W.&N.W. Sur. ... Drlg. 1,627 ft.
Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Location.
Marland-Texon Prod. Co.'s No. 1 Eason, 2,638 ft. S and E of SW cor. Sec. 124, Blk. 29, W.&N.W. Sur. ... Swabbing 150 bbls. daily 2,200-60 ft.; shot with 200 qts. at 2,190-2,240 ft.; cleaning out.
Marland Oil Co.'s No. 8-A Settles, 2,310 ft. N and E of SW cor. Sec. 158, Blk. 29, W.&N.W. Sur. ... Location.
Midwest Exp. Co.'s No. 2 Clay-C, 330 ft. N and 1,650 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Drlg. 700 ft.
Marland Prod. Co.'s No. 3 Clay, Lease G, 785 ft. N and 1,570 ft. W of SW Sec. 126, Blk. 29, W.&N.W.R.R. Sur. ... Location.
Moody Oil Corp.'s No. 13 D. Roberts, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ... Location.
Merrick & Bristow's No. 8 Dora Roberts, 990 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ... Drlg. 1,745 ft.
Merrick & Lamb's No. 7 Clay, 250 ft. N and 1,535 ft. W of SE cor. Sec. 126, Blk. 29, W.&N.W.R.R. Sur. ... Location.
Midwest Exploration Co.'s No. 3 Clay-C, 990 ft. W and 330 ft. N of SE cor. Sec. 138, Blk. 29 ... Location.
Phillips Pet. Co.'s No. 1 J. Thomas, 330 ft. N and W of SE cor. Sec. 13, Blk. 33, Twp. 1n, T.&P. Sur. ... Topped lime 3,030 ft.; hole full sulphur water; drlg. 3,865 ft.
Pure Oil Co.'s No. 9 Chalk, 990 ft. N and W of SE cor. Sec. 125, Blk. 29, W.&N.W. Sur. ... Set 6-in. 1,645 ft.
Pure Oil Co.'s No. 11 Chalk, 2,310 ft. N and 1,060 ft. W of SE cor. Sec. 125, Blk. 29, W.&N.W.R.R. Sur. ... Location.
Schermerhorn Oil Co.'s No. 4 Roberts-A, 2,304 ft. S and 2,306 ft. W of NE cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ... Drlg. 1,210 ft.
Shell Pet. Corp.'s No. 1 Settles, 990 ft. E and 330 ft. N of SW cor. Sec. 135, Blk. 29 ... Cem. 8¼-in. casing 2,141 ft.
Sun Oil Co.'s No. 6 Settles, 915 ft. N and 330 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W. Sur. ... Drlg. 1,685 ft.
Taylor-Link Oil Co.'s No. 2 Kloh-Rumsey, 1,884 ft. E and 150 ft. N of SW cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ... Drlg. 1,742 ft.
Ward Oil Co.'s No. 3 Dora Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29 ... Drlg. 2,040 ft.
Ward Oil Co.'s No. 5 Roberts, 1,650 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29 ... Shut down 1,928 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ... Total depth 260 ft.; shut down tools moved off.
California Co.'s No. 1 University, 2,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ... Total depth 352 ft.; shut down, crooked hole; trying to straighten hole.
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ... Straightreaming 2,700 ft.; total depth 2,740 ft.; fishing pipe.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ... Hole full water 2,945 ft.; underreaming 8¼-inch casing at 2,840 ft.; trying to get water shut off; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ... Rig.
Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,029, Blk. 24, H.&T.C. Sur. ... Location.
Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 3, C SE Sec. 3,009, Blk. 24, H.&T.C. Sur. ... Spud.
Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur. ... Spudding.
Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonsales Co. School Land ... Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.
Mertzon Interests' No. 1 Harlan Horney, 2,440 ft. N and 150 ft. from W lines of Sec. Z, Blk. 3, H.&T.C. Sur. ... Drlg. 750 ft.
Signal Oil Co.'s No. 2 Suggs, 5,240 ft. from N line and 986 ft. from W line, Sec. 23, Blk. 27, H.&T.C. Sur. ... Spud.
Sun Oil Co.'s No. 1 Tankersley, 2,128 ft. N and 1,173 ft. E of SW cor. Sec. 8, G.C.&S.F. Sur. ... Location.
F. E. Webb et al's No. 1 J. M. Nutt ... Drlg. 2,550 ft.
Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ... Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-83 ft.; drlg. gray lime 5,545 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 660 ft. W line Sec. 245, H.&T.C. Sur. ... Show gas 3,271 ft.; black lime; slight show gas; drlg. 3,490 ft.

JONES COUNTY

Anna Belle Oil Co.'s No. 1 Bickley, 330 ft. S and E of NW cor. SE NE Sec. 50, Blk. 18, T.&P. Sur. ... Rig.
E. P. Campbell et al's No. 2-C Herndon, 330 ft. N and E of SW cor. NW Sec. 6, M.E.P.&P. Sur. ... Total depth 1,800 ft.; underreaming 10-in. 1,740 ft.
Cosden & Co.'s No. 1 Brown, 200 ft. N and 300 ft. W of SE cor. J. H. Grayson Sur. ... Drlg. 751 ft.
Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 319 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. ... Rig.
Cosden & Herbert Oil Co.'s No. 6 Bickley, 330 ft. S and 319 ft. E of NW cor. S half NW of Sec. 50, Blk. 18, T.&P. Sur. ... Location.
Grisham & Hunter's No. 1 Tiner, 311 ft. N and 330 ft. W of SE cor. Gabriel Zumwalt Sur. ... Drlg. 920 ft.
Marland Prod. Co.'s No. 7 Mason, 330 ft. S and 990 ft. W of NE cor. S half NE Sec. 18, Blk. 19, T.&P. Sur. ... Location.
Mid-Sun Oil Corp.'s No. 1 George Hoehn, 660 ft. N and W of SE cor. SE 40 ac. of N 160 ac. of W 320 ac. of A. Crain Sur. A-162 ... Drlg. 2,325 ft.
McClanahan et al's No. 1 Hall, 150 ft. N and E of SW cor. of Hall 220-acre tract, C.&M.R.R. Co. Sur. ... Location.
McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C. ... Location.
McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land ... Spudded and shut down.
Phillips Pet. Co.'s No. 1 Winters, Sec. 19, Blk. 19, T.&P. Sur. ... Drlg. 2,865 ft.
Phillips Pet. Co.'s No. 6 Mason, 330 ft. S and 300 ft. W of NE cor. W half of NE Sec. 18, Blk. 19, T.&P. Sur. ... Location.
Roberts Oil Corp.'s No. 8 Grayson, 2,083 ft. N and 330 ft. W of SE cor. of their lease out of Sec. 13, Blk. 19, T.&P. ... Location.
Sedwick O. & G. Co.'s No. 1 Routh, 1,250 ft. N, 2,500 ft. W SE cor. 299-ac. tract, Austin & Williams Sur. 355-A-7 ... Spud.
Sinclair O. & G. Co.'s No. 2 Buckley, 975 ft. S, 320 ft. E of NW cor. N half NE cor. Sec. 50, Blk. 18, T.&P. R.R. Sur. ... Shot with 25 qts. 2,505-13 ft.; fishing 2,980 ft.
Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur. ... Location.
Snowden & McSweeney's No. 6 Bickley, 330 ft. N and 319 ft. E of SW cor. N half Sec. 50, Blk. 18, T.&P. R.R. Sur. ... Location.
U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283 ... Spudded and shut down.

LOVING COUNTY

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ... Location.
Lockhart & Co.'s No. 1 H. L. Lepp, 330 ft. each way from S cor. of Sec. 3, Blk. 2, W.&N.W. Sur. ... Cem. 10-in. 578 ft.
Lockhart & Co.'s No. 1 Hubbard, 2,640 ft. NE and 660 ft. NW Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ... Location.

LYNN COUNTY

Miller et al's No. 1 May, 500 ft. N of C of S L of Sec. 10, Blk. 7, E.L.R.R. Sur. ... Spudded and shut down.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22 ... Shut down 600 ft.
Sorrels & Jackson's No. 1 F. Wilhelm, C NE Sec. 6, Blk. C, Brooks & Burleson Sur. ... Drlg. 1,560 ft.

MIDLAND COUNTY

Shoup et al's No. 1 Roy Parks, C NW Sec. 34, Blk. 41, Twp. 2s, T.&P. Sur. ... Top salt 1,700 ft.; cem. 8½-in. casing 2,770 ft.; show oil 3,330 ft.; shut down 4,980 ft.

MITCHELL COUNTY

California Co.'s No. 6 Foster, Lease 1, 990 ft. N and 2,310 ft. E of SW cor. Sec. 6, Blk. 29, Twp. 1s, T.&P. Sur. ... Tested 35 bbls. 2,573-2,616 ft.; drlg. ahead.
E. P. Campbell et al's No. 1 Pond, 1,065 ft. W, 660 ft. N of SE cor. Sec. 79, Blk. 27, T.&P. Sur. ... Show oil 2,660-65 ft.; drlg. 2,810 ft.
Magnolia Pet. Co.'s No. 6 Foster, 1,980 ft. N and E of SW cor. Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur. ... Rig.
Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. ... Rig.
Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ... Four bailers salt water per hr. 3,405 ft.; drlg. 3,640 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. ... Rig.
Herbert Oil Co.'s No. 1 Pepper, C N half Sec. 32, Blk. 22, T.&P. Sur. ... Show gas 3,160 ft.; hole full sulphur water 3,190-3,202 ft.; shut down 3,655 ft.
C. M. Root et al's No. 1 Simpson, 330 ft. S and W of NE cor. SE Sec. 33, Blk. 19, T.&P. Sur. ... Drlg. 2,390 ft.
W. E. O. & R. Co.'s No. 1 Allyn, 600 ft. E and 1,720 ft. N of SW cor. Sec. 48, Blk. 20, T.&P. Sur. ... Underreaming 6⅝-in. casing 2,740 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur. ... Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.
George Anderson's No. 1 University, C Sec. 11, Blk. 17 ... Top salt 1,020 ft.; 7,000,000 ft. gas; drilled deeper to 1,997 ft.; 60 bbls. fluid, 98 per cent water; plugged back to gas at 1,963 ft.
M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur. ... Location.
Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land ... Location.
California Co.'s No. 1 Smith, Lease 4, 1,010 ft. from N and E line Sec. 15, Blk. 194, G.C.&S.F. Sur. ... Shut down 1,786 ft.
Crowley's No. 1 Heiner, 2,490 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur. ... Location.
The California Co.'s No. 3 Smith, Lease 1, 1,789 ft. from N and 1,005 ft. from W lines, Sec. 21, Blk. 194, G.C.&S.F.R.R. Sur. ... Drlg. 820 ft.
California Co.'s No. 7 Smith, Lease 1, 998 ft. from S and 1,738 ft. from W lines, Sec. 23, Blk. 194, G.C.&S.F.R.R. Sur. ... Rig.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G.W. Sur., elev. 2,555 ft. ... Top lime 1,305 ft.; set 6-in. casing 1,610 ft.; pulling 8¼-in. casing; total depth 2,004 ft.
Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387 ... Shut down 660 ft.
Doran & McGee's No. 1 P.V.O. Co., 150 ft. from SE and SW lines Sec. 22, Blk. 10, H.&G.N. Sur. ... Location.
Gulf Prod. Co.'s No. 16 Smith-B, 990 ft. S and 990 ft. E of NW cor. Sec. 22, Blk. 194, G.C.&S.F.R.R. Sur. ... Rig.
Marland Prod. Co.'s No. 1 Blakeslee, 330 ft. N of middle of S line Sec. 100, Blk. 8, H.&G.N. ... Location.
Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ... Moving in machine.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ... Shut down 1,010 ft.
McCarty Oil Co.'s No. 1 A. A. Gray, 1,520 ft. from S and 150 ft. from W lines Sec. 591, Abst. 3,010 ... Drlg. 590 ft.
Mid-Kansas Oil & Gas Co.'s No. 12-C Yates, 811 ft. from N and 371 ft. from W lines Sec. 60, Blk. 1, I.&G.N. R.R. Sur. ... Top pay 1,160 ft.; drlg. 1,345 ft.; flowing 870 bbls. hr.
Mid-Kansas Oil & Gas Co.'s No. 8 Yates-H, 797 ft. N and 3,528 ft. E of SW cor. Sec. 32, Blk. 194, G.C.&S.F. R.R. Sur. ... Cellar.
Mid-Kansas Oil & Gas Co.'s No. 28 Yates, 811 ft. N and 371 ft. E of NW cor. Sec. 60, Blk. 1, I.&G.N. Sur. ... Location.
Pecos Valley Oil Co.'s No. 2 fee, 1,620 ft. from SW and 1,320 ft. from NW Sec. 22, Blk. 10, H.&G.N.R.R. Sur. ... Drlg. 950 ft.
Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, H.&T.C. Sur. ... Location.
Phillips Pet. Co.'s No. 1 J. L. Nutt, 2,310 ft. from W and 330 ft. from S lines Sec. 9, Blk. 125, T.&St.L. Sur. ... Drlg. 1,702 ft.
Phillips Pet. Co.'s No. 1 Ramsey, 990 ft. from N and E lines, Sec. 17, Blk. 194, G.C.&S.F. Sur. ... Moving in machine.
Stein & McGee's No. 1 Louis Paterson, 150 ft. SE of NW line, 150 ft. NE of SW Sec. 34, Blk. 10, H.&G.N. ... Location.

B. J. Spikes' No. 1 George Brown ..... Shut down 700 ft.
Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ..... Shut down 492 ft.
Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&S.L. Sur. ..... Show gas 1,455-60 ft.; water 3,175 ft.; fishing 3,380 ft.
Talbot & Ditman's No. 1 Unsicker, 1,320 ft. from E and 660 ft. from S lines, Sec. 25, Blk. 10, H.&G.N. ..... Drlg. 1,005 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ..... Top lime 1,155 ft.; drlg. 4,165 ft.
Trees Oil Co.'s No. 1 Trees, 330 ft. from N and E L of Sec. 63, Blk. 8 ..... Location.
World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft. ..... Shut down 3,105 ft.

PRESIDIO COUNTY

Eastland Oil Co.'s No. 1 Smith, C Sec. 17, Certificate 463, or Blk. 351, G.C.&S.F.R.R. ..... Spudded and shut down.
Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. ..... Show wet gas 1,270 ft.; shut down 2,200 ft.
L. C. Brite's No. 1 Lee, Sec. 50, Blk. 12, G.H.&S.A. Sur., center of section ..... Shut down 4,152 ft.; show oil 4,130 ft.; set 6-in. casing 4,152 ft.; drlg. 4,738 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land.. Location.
Big Lake Oil Co.'s No. 2-C University Land, 2,109 ft. N and 926 ft. W of SE cor. Sec. 1, Blk. 2, University Land ..... Location.
Big Lake Oil Co.'s No. 159 University, 2,090 ft. N and 920 ft. W SE cor. Sec. 1, Blk. 2 ..... Location.
Big Lake Oil Co.'s No. 160 University, 1,320 ft. N and 1,060 ft. W of SE cor. Sec. 2, Blk. 2 ..... Location.
Big Lake Oil Co.'s No. 161 University, 1,720 ft. N and 1,720 ft. E of SW cor. Sec. 1, Blk. 2 ..... Location.
Big Lake Oil Co.'s No. 162 University, 920 ft. S and 1,720 ft. W of NE cor. Sec. 36, Blk. 1 ..... Location.
Big Lake Oil Co.'s No. 163 University, 1,930 ft. S and 1,720 ft. W of NE cor. Sec. 1, Blk. 2 ..... Location.
Big Lake Oil Co.'s No. 164 University, 2,240 ft. N and 400 ft. E of SW Sec. 12, Blk. 2 ..... Location.
Big Lake Oil Co.'s No. 165 University, 2,240 ft. N and E of SW cor. Sec. 12, Blk. 2 ..... Location.
Big Lake Oil Co.'s No. 166 University, 920 ft. S and 2,240 ft. E of NW cor. Sec. 12, Blk. 2 ..... Location.
The California Co.'s No. 5 University, 2,310 ft. from N and E lines Sec. 16, Blk. 7, University Land ..... Top salt 1,280 ft.; drlg. 1,825 ft.
Texon O. & L. Co.'s No. 1-B University Group 1 ..... Top pay 6,250 ft.; hole full of oil; well made two small heads; oil sand 8,482 ft.; total depth 8,525 ft.; flowing 1,800 bbls. oil daily.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Total depth 2,900 ft.; shut down.
Dr. Kitsis et al's No. 1 Kloh & Rumsey, 330 ft. N and W of SE cor. Sec. 5, Blk. 54, Twp. 5, T.&P. Sur. ..... Set 8-in. casing 1,010 ft.; drlg. 1,192 ft.
Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 ..... Location.
David R. Thompson's No. 1 A. A. Eddins ..... Swedging casing 5,658 ft.; pulling 5-in. casing.
Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. ..... Oil show 226 ft.; drlg. 1,440 ft., anhydrite.
Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ..... Rigging up standard tools.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 ..... Shut down 1,350 ft.
Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE L Gray Carroll Sur. ..... Shut down 360 ft.
R. D. Hamilton et al's No. 1 A. Spill, 1,320 ft. S and W of NE cor. A. Spill 891 acres, out of Thomas R. Webb Sur. 358 ..... Shut down 100 ft.
McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. ..... Shut down 1,185 ft.
Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 ..... Trying to set 6-in. casing 2,415 ft.
R. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. 26 ..... Shut down 1,650 ft.
Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor. Sec. 1, H.E.&W.T. Sur. ..... Drlg. 2,560 ft.

SCHLEICHER COUNTY

J. F. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur. ..... Shut down 275 ft.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down.
G. E. Dieckman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 1,810 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. ..... Show oil 1,296-98 ft. and 1,356-58 ft.; drlg. 1,809 ft.
George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur. ..... Location.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Drlg. by tools 5,770 ft.
L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. ..... Location.
Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. ..... Drlg. 525 ft.

TAYLOR COUNTY

Burnham et al's No. 1 A.M.Y.X. ..... Drlg. 2,220 ft.
Grisham-Hunter Corp.'s No. 1 Campbell, 330 ft. S and E of NW cor. SW Sec. 65, Blk. 19, T.&P. Sur. ..... Drlg. 881 ft.
Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur. ..... 300 ft. oil 2,384-87 ft.; shut down 2,391 ft.
Wentz Oil Corp.'s No. 1 Armour, 375 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. ..... Drlg. 250 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Spudded and shut down.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur. ..... Shut down 1,749 ft.
Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 75, Blk. D-7, E.L.&R.R. Sur. ..... Location.
Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ..... Cem. 6⅝-in. casing 3,986 ft.; total depth 4,580 ft.; waiting on cable tools.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 150 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.&R.R. Sur. ..... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. ... Shut down 1,800 ft.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ..... Shut down 1,920 ft.
F. P. Green et al's No. 1 fee, 575 ft. from N and 1,450 ft. from W lines Sec. 165, District 11, S.P.R.R. Co. Sur. ..... Set 8-in. casing 1,810 ft.
McLaughlin & Ridge's No. 1 R. Q. Holder, 3,140 ft. N and 80 ft. W SE cor. J. P. Parker Sur. (3,000-ft. test) ..... Show gas 1,757-59 ft.; shut down 3,005 ft.; hole full water 2,986 ft.

THROCKMORTON COUNTY

W. W. Donnelly's No. 1 Reynold Cattle Co., SW cor. SE Sec. 22, Blk. 2, A.B.M. Sur. ..... Drlg. 50 ft.

UPTON COUNTY

Champlin Oil & Ref. Co.'s No. 4 J. F. Lane, 990 ft. from S, 330 ft. from W line of SE Sec. 2, G.C.&S.F. Sur. .. Top pay 1,940 ft.; pumping 40 bbls. oil and 470 bbls. water; shut down 1,979 ft.
Humble Oil & Ref. Co.'s No. 10 Ricker, 2,310 ft. from NE line and 3,280 ft. from NW line, Sec. 5, Mary Denton Sur. ..... Hole full oil 2,109-98 ft.
Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ..... Rig.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ..... Spudded and shut down.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,600 ft. (corrected.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tes... 125,750 ft. gas; reset 8-in. ... ft.; shut down 4,210 ft.
Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 1,900 ft.
Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ..... Show oil and gas 1,053 ft.; sh... down 2,605 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y ... Set 15½-in. casing 767 ft.; set 1... in. casing 1,510 ft.; drlg. 2,1... ft.

WARD COUNTY

E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Spudding and shut down.
Prairie O. & G. Co.'s No. 1 Sealy Est., 1,320 ft. S and W Sec. 35, Blk. A, G.M.M.B.&A. Sur. ..... Top salt 1,073 ft.; 5,000,000 ft. ... 2,526 ft.; gas decreased to ... 000,000 ft. at 2,637 ft.; hole f... sulphur water 3,450 ft.; 5,000,0... ft. gas 2,526 ft.; shut down ... 505 ft.; trying to complete ... gasser; plugged back to 2,... ft.; tested 5,000,000 ft. gas.
Rector Oil Co.'s No. 1 Johnson, 1,150 ft. NW, 5,160 ft. NE Sec. 10, Blk. 32, H.&T.C. ..... Top salt 745 ft.; total depth 2,5... ft.; set 6-in. casing 2,539 ... underreaming 2,543 ft.
Talbot, Dittman & Atlantic O. P. Co.'s No. 1 Dorr, 1,320 ft. from SE line and 660 ft. from SW line of Sec. 9, Blk. 5, H.&T.C.R.R. Sur. ..... 3 bbls. water per hr. 910 ft.; ... 10-in. casing 770 ft.; drlg. 2,... ft.; water 2,550-70 ft.

WINKLER COUNTY

Amerada Pet. Corp.'s No. 3 Daugherty, NW cor. NE SE Sec. 3, Blk. 74 ..... Top lime 2,812 ft.; running ... casing 2,824 ft.; drlg. 2,975 ... sandy lime.
Atlantic Prod. Co.'s No. 4 Hendricks, SW W half NE Sec. 44, Blk. 26 ..... Drlg. 2,190 ft., anhydrite.
V. T. Bolin et al's No. 2 Brown, 2,000 ft. S and W of NE cor. Sec. 4, Blk. B-5, Public School Land ..... Shut down 210 ft. water.
Barnsdall Oil Corp.'s No. 1 Tobe Morton, 330 ft. N and E of SW cor. Sec. 26, Blk. B-12 ..... Oil show 3,070 ft.; set pipe ... ft.; strs'chtreaming 3,230 ... drlg. 3,242 ft.
Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Set 12½-in. casing 547 ft.; corin... 2,747 ft.; cored anhydrite 2,7... ft.
Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Cellar.
Empire Gas & Fuel Co.'s No. 2 Daugherty, 330 ft. N and 2,310 ft. E of SW Sec. 3, Blk. 74 ..... Top lime 2,690 ft.; coring ... ft.; 15,000,000 ft. gas 3,... top pay 3,045 ft.; rigging ... standard tools at 3,150 ft.; ... 66 bbls. daily 10,000,000 ft. ... shut down 3,164 ft., order... flowed 204 bbls. daily.
Empire Gas & Fuel Co.'s No. 3 Daugherty, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. 74 ..... Top lime 2,774 ft.; cem. 9-in. ca... ing 2,781 ft.; set 6-in. casi... 3,125 ft.; oil show 3,125 ft.
Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74 ..... Top lime 2,823 ft.; oil and ga... show at 3,165 ft.; total dept... 3,165 ft.; shut down.
Gulf Prod. Co.'s No. 3 Cowden, 1,310 ft. N, 330 ft. E of SW of their 240-ac. tract, Sec. 3, Blk. B-12 ..... Top salt 1,300 ft.; cem. 8¼-i... 2,486 ft.
Gulf Prod. Co.'s No. 4 Cowden, 495 ft. N and 330 ft. E of SW cor. of 240-ac. lease, Sec. 3, Blk. B-12 ..... Drlg. 410 ft.
Gulf Prod. Co.'s No. 2 Hendricks, 1,330 ft. N and 330 ft. W of SE cor. NW Sec. 44, Blk. 26, School Land .. Drlg. 2,456 ft.
Humble Oil & Ref. Co.'s No. 3 Hendricks-C, Lease No. 2, 1,320 ft. S and 330 ft. E of NW cor. Sec. 10, Blk. B-12 ..... Top lime 2,442 ft.; cem. 8⅝-i... casing 2,448 ft.; drlg. 2,871 ft.
Humble Oil & Ref. Co.'s No. 4 Hendricks-C, 2,200 ft. N and 330 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Cem. 10-in. casing 336 ft.
Humble Oil & Ref. Co.'s No. 5 Hendricks-C, 2,200 ft. N. and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Drlg. 600 ft.
Humble Oil & Ref. Co.'s No. 6 Hendricks-C, 1,320 ft. N and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Cem. 10-in. casing 198 ft.
Humble Oil & Ref. Co.'s No. 7 Hendricks-C, 440 ft. S and 990 ft. E of NW Sec. 10, Blk. B-12 ..... Rigging up rotary.
Humble Oil & Ref. Co.'s No. 8 Hendricks-C, 440 ft. S and 1,650 ft. E of NW Sec. 10, Blk. B-12 ..... Cem. 8¼-in. casing 178 ft.
Independent Oil & Gas Co.'s No. 3-B Hendricks, NW W half SE Sec. 44, Blk. 26 ..... Shut down waiting orders to plug.
Magnolia Pet. Co.'s No. 1 Scarborough, 2,310 ft. S and 990 ft. E Sec. 1, Blk. C-22 ..... Top salt 1,122 ft., gas show 2,04... 45 ft.; flowed 128 bbls. dai... last 7 days.
Marland Oil Co.'s No. 2 Tobe Morton, 990 ft. N and 330 ft. W of SE cor. Sec. 27, Blk. B-12 ..... Set 12½-in. casing 405 ft.; to... salt 1,620 ft.; cem. 8¼-in. ca... ing 2,680 ft.; drlg. plug.
Morris & Henshaw's No. 1-B Hendricks, 1,650 ft. N and 990 ft. E of SW cor. Sec. 28, Blk. B-5, School Land.. Top lime 2,598 ft.; drlg. 2,680 ft. lime.
Prairie Oil & Gas Co.'s No. 5 Cowden, 1,320 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12, School Land.. Cem. 8¼-in. casing 2,498 ft.; to... lime 2,450 ft.; drlg. 2,710 ft.
Prairie Oil & Gas Co.'s No. 6 Cowden, 440 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12, School Land ..... Rigging up rotary.
Prairie O. & G. Co.'s No. 1 Leck, 330 ft. S and 2,310 ft. E of NW cor. Sec. 16, Blk. 74 ..... Cem. 12½-in. casing 240 ft.; cem... 8-in. casing 2,663 ft.; spray ... 3,150 ft.; standardizing.
Prairie O. & G. Co.'s No. 2 Leck, 330 ft. S and 2,310 ft. W of NE cor. Sec. 16, Blk. 74 ..... Total depth 3,075 ft.
Prairie O. & G. Co.'s No. 1 Tobe Morton, 330 ft. N and 1,650 ft. W of SW cor. Sec. 27, Blk. B-12 ..... Cem. 12½-in. casing 500 ft.; cem... 8¼-in. casing 2,770 ft.; top lim... 2,865 ft.; hole full sulphur wa... ter at 3,060 ft.; shut down 3,1... ft. for orders; water increase... 3,109 ft.
Prairie Oil & Gas Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22 ..... Location.
Pure Oil Co.'s No. 1 Hendricks, NE SW Sec. 44, Blk. 26 .. Set 12½-in. casing 896 ft.; drlg. 1,488 ft.
Republic Prod. Co.'s No. 7-A Grisham-Hunter, 1,650 ft. N and E of SW cor. Sec. 45, Blk. 25, School Land ... Location.
Shell Pet. Co. et al's No. 2 Lum Daugherty, 2,310 ft. S and 1,650 ft. W of NE Sec. 3, Blk. 74 ..... Top lime 2,742 ft.; total dept... 3,208 ft.; est. 5,000 bbls. dai... salt water; plugged back to ... 170 ft.; 160 bbls. oil, 602 bbl... water in 24 hrs.
Skelly Oil Co.'s No. 1 Leck, 440 ft. N and 330 ft. E of SW cor. Sec. 33, Blk. 26, School Land ..... Location.
Skelly Oil Co.'s No. 1 Morton, 2,310 ft. N and 165 ft. W of SE cor. Sec. 27, Blk. B-12, School Land Sur. ..... Cellar.
Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 ..... Location.

THE MOST MODERN DRILLING EQUIPMENT *includes* Gardner Mud Pumps

The Gardner 7¼x14 Enclosed Power Pump is noteworthy among modern developments in equipment which makes possible faster drilling at lower cost. This pump can be arranged for any type drive.

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Simms Oil Co. and Southwest O. P. Co.'s No. 1 George Sealey, 2,434 ft. S and 330 ft. W of NE cor. Sec. 50, Blk. F ..... Top lime 2,676 ft.; drlg. 2,676 ft.; rigging up standard tools; shut down.

Southern Crude O. P. Co.'s No. 6 Hendricks T-67-3-A, 990 ft. S and 1,650 ft. W of NE cor. Sec. 4, Blk. B-12 ..... Location.

Simms Pet. Co. et al's No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ..... Rotary rig.

Southern C. O. P. Co. and Westbrook Thompson's No. 4 Hendricks T-88-B, 330 ft. S and 1,320 ft. E NW cor. Sec. 4, Blk. B-12, Public School Land ..... Top lime 2,721 ft.; fishing 2,842 ft.

Southern Crude O. P. Co.'s No. 2 Hendricks T-88-Q, 440 ft. S and 330 ft. E of NW Sec. 27, Blk. 26, School Land ..... Location.

Southern Crude O. P. Co.'s No. 1 Hendricks T-88-CX, 440 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26, School Land ..... Location.

Southern Crude O. P. Co.'s No. 4 Hendricks T-88-J, 440 ft. S and 1,320 ft. W of NE Sec. 9, Blk. B-12, School Land ..... Location.

Southern Crude O. P. Co.'s No. 5 Hendricks, 1,320 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. 26, School Land ..... Location.

Southern C. O. P. Co. and Westbrook-Thompson's No. 3 Hendricks T-89-C, 2,310 ft. N and W of SE cor. Sec. 35, Blk. B-5 ..... Cem. 8¼-in. casing 2,290 ft.; rigging up standard tools; drlg. 2,885 ft.; spray 75 bbls. oil, 10 bbls. water daily, with 5,000,000 ft. gas.

Southern C. O. P. Co.'s No. 6 Hendricks T-88-D, 440 ft. N and 1,320 ft. W of SE cor. Sec. 4, Blk. B-12 ..... Drlg. 935 ft.

Southern C. O. P. Co.'s No. 3 Hendricks T-89-J, 2,200 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12, School Land ..... Drlg. 40 ft.

Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur... Rigging up standard tools.

Texon Oil & Land Co.'s No. 6 Grisham & Hunter-B, 1,320 ft. N and 990 ft. E of SW cor. Sec. 45, Blk. 26.. Rigging up rotary.

Warner-Quinlan Co.'s No. 1 Daugherty, 2,310 ft. S and E of NW cor. Sec. 3, Blk. 74, Public School Land ... Cem. 8¼-in. casing 2,671 ft.; coring 3,097 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 39)

GRAY COUNTY

Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Spud.

B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur. ..... S.D. 1,412 ft.

Arnold & Howell's No. 1 Turnex, C SW, Sec. 111, Blk. B-2 ..... S.D. 2,224 ft. for pipe.

Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½ SE, Sec. 9, Blk. 1, A.C.H.&B. Sur. ..... Rig.

Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Cellar.

Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.O. 2,400 ft.; S.D. 2,735 ft.

Constantine et al's No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H. & G. N. Sur. ..... Drlg. 1,715 ft.

Danciger et al's No. 1 Shaw, 1,000 ft. N and 330 ft. W SE cor. SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... 35,000,000 ft. gas 2,290 ft.; show oil 2,610-13 ft.; run insert liner 2,645 ft.

Danciger et al's No. 1 J. E. Williams, 330 ft. each way from NE cor. NW SW, Sec. 6, Blk. 1, A.C.H.&B. Sur.. Drlg. 1,140 ft.

Danciger et al's No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.

Delmar Oil Co.'s No. 1 F. Foster, NW cor. SW, Sec. 55, Blk. B-2, H.&G.N. Sur. ..... S.O.; 4,000,000 ft. gas 3,835-97 ft.; T.D. 3,757 ft.; to plug back to 2,950 ft. and shoot.

Delmar Oil Co.'s No. 1 Chapman, 330 ft. each way from SE cor. NW, Sec. 10, Blk. 26, H.&G.N. Sur. ..... Drlg. 2,380 ft.

Empire G. & F. Co.'s No. 1 A. R. Clay, NE cor. Sec. 185, Blk. B-2 ..... Drlg. 1,990 ft.

Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE. E½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,780 ft.

Sines & Reiger's, formerly Eslick et al's No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Pull 6-in. csg. 3,206 ft.

Gulf Prod. Co.'s No. 4 Holmes-A, 990 ft. N and 330 ft. E of SW cor. W½ SE, Sec. 87, Blk. 3, I.&G.N. R.R. Sur. ..... Drlg. 3,050 ft.

Gardner, Collins et al's No. 1 Saunders, 330 ft. each way from NE cor. of S 49 ac. of W 100 ac., Sec. 3, B.&B. Sur. ..... 10,100,000 ft. gas 2,526-46 ft.; drlg. 2,725 ft.

Magnolia Pet. Co.'s No. 3 W. Harrah, 330 ft. from NE cor. NW, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,735 ft.

Magnolia Pet. Co.'s No. 1 Gething, 530 ft. each way from SE SW, Sec. 14, Blk. A-9, H.&G.N. Sur. ..... Drlg. 1,780 ft.

Malone et al's No. 1 Taylor, 990 ft. S and E of NW cor. NW Sec. 32, Blk. B-2, H.&G.N. Sur. ..... Drlg. 1,920 ft.

Marland Prod. Co.'s No. 1 Brown-Finley, 330 ft. S and W of NE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur.... Drlg. 2,028 ft.

McLain Oil Co.'s No. 1 Back, 1,000 ft. from W. line and 330 ft. from N line NW, Sec. 24, Blk. 25, H.&G.N. Sur. ..... Spud. and S.D.

Midwest O. & G. Co.'s No. 1 Bower-B, 1,650 ft. from E and 330 ft. from N lines, Sec. 93, Blk. B-2, H.&G. N.R.R. Sur. ..... Spud.

Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G.N. R.R. Sur. ..... Cellar.

Operators Oil Co.'s No. 3 Jackson, 330 ft. S and 990 ft. E of NW cor. N½ of NE Sec. 88, Blk. B-2, H.&G.N. R.R. Sur. ..... Drlg. 460 ft.

Parton & Holt's No. 1 Gething, 330 ft. each way from SE cor. NE, Sec. 14, Blk. A-9 ..... S.D. 2,808 ft.

Phillips Pet. Co.'s No. 4 Johns, 330 ft. each way from NE cor. SE SW, Sec. 87, Blk. 3, I.&G.N. Sur. ..... Swabbed 240 bbls., 3,204-10 ft.

Phillips Pet. Co.'s No. 5 Johns, 330 ft. N and 990 ft. E of SW cor. SW, Sec. 87, Blk. 3, I.&G.N. Sur. ..... Rig.

Prairie O. & G. Co.'s No. 2 Reynolds, 330 ft. each way from NW cor. SE, Sec. 61, Blk. 3, I.&G.N. Sur. ..... Swabbed 40 bbls. 10 hrs. from G.W. 3,094-3,101 ft., to pump.

Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... 2,000,000 ft. gas; 200 ft. oil 2,870 ft.; shot with 510 qts. 2,775-2,872 ft.; 400 ft. oil; C.O. 2,875 ft., to pump.

Republic Prod. Co.'s No. 1 G. H. Saunders, 330 ft. each way from SW cor. E½ NW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Drlg. in sidetracked hole 2,400 ft.

Schwald et al's No. 1 fee, 330 ft. each way from NE cor. E½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 2,414 ft.

Skelly Oil Co.'s No. 1 Saunders, 330 ft. from E line, 990 ft. from S line, SW, Sec. 4, Blk. 1, A.C.H.&B. Sur.... Fish. 2,475 ft.

Skelly Oil Co.'s No. 3 Saunders, 330 ft. from N line and 990 ft. from W line, SW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Swb. 10 bbls. 2,750-75, T.D. 2,910 ft., to d.d.

St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... S.D. 2,562 ft.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Southern Pet. Exp. Co.'s No. 2 McConnell, 990 ft. from W line and 330 ft. from S line NW, Sec. 174, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,785 ft.

The Texas Co.'s No. 6 Davis, 330 ft. S and 1,650 ft. W of NE cor. of NW Sec. 86, Blk. 3, I.&G.N.R.R Sur.. Location.

The Texas Co.'s No. 5 A. Chapman, 1,138 ft. from W and 330 ft. from S lines, SE, Sec. 51, Blk. 25, H. &G.N. Sur. ..... Drlg. 345 ft.

The Texas Co.'s No. 5 Davis, 330 ft. S and W of NE cor. NW, Sec. 86, Blk. 3, I.&G.N. Sur. ..... Swb. 45 bbls. 17 hrs., G.W. 3,1[illegible] 55 ft.

Travis et al's No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... 30,000,000 ft. gas 2,592-2,610 ft.; light spray oil 2,740-45 ft.; to deepen.

Wilcox-Pampa Oil Co.'s No. 31 Worley Reynolds, 330 ft. N and E SW cor. SE SW, Sec. 61, Blk. 3, I.&G.N... Drlg. 2,847 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County school lands; elevation 3,363 ft.; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... 15,000,000 ft. gas 3,300-35 ft.; T.D. 3,601 ft.; deepen.

Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N. and 660 ft. E, Sec. 18, Blk. 2, G.&M. Sur. ..... Rig.

HUTCHINSON COUNTY

Antelope Creek Oil Co.'s No. 3 Sanford, 330 ft. from N line and 330 ft. from W line of E½ S 160 ac. of Sec. 82, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,760 ft.

Dunnigan et al's No. 1 C. W. Hugenbyhl, 330 ft. from S line and 330 ft. from E line, N½, Sec. 4, Blk. T, W.N.G.R.R. Sur. ..... U.R. 8-in. casing 2,145 ft.

Marland Prod. Co.'s No. 4 Johnson-C, 450 ft. S and W of NE cor. Sec. 5, Blk. 1, B.&B. Sur. ..... Location.

Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.

Phillips Pet. Co.'s No. 2 Jasper, 980 ft. from S line and 660 ft. from E line SE, Sec. 23, Blk. M-23, T.C. R.R. Sur. ..... Fishing 510 ft.

Phillips Pet. Co.'s No. 4 Johnson Bros.-Florence, 330 ft. N and E of SW cor. E½, Mary Whitely Sur..... Running 8-in. 2,114 ft.

Phillips Pet. Co.'s No. 3 Johnson-Pulaski, 330 ft. N and W of SE cor. W½, Mary Whitely Sur. ..... Drlg. 2,755 ft.

Phillips Pet. Co.'s No. 5 Johnson-Barnum, 990 ft. N and 330 ft. W SE cor. E 80 ac. of S 160 ac. of N 400 ac., Sec. 64, Blk. 46, H.&T.C.R.R. Sur. ..... Drlg. 1,150 ft.

Phillips Pet. Co.'s No. 3 Sanford-Garland, 330 ft. N and E of SW cor. Sec. 77, Blk. 46, H.&T.C. Sur. ..... Spud.

Phillips Pet. Co.'s No. 15 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. ..... Drlg. 1,220 ft.

Phillips Pet. Co.'s No. 16 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. ..... S.D.

Timms et al's No. 1 Moore, 330 ft. N and E of SW cor. S 40 ac. of NW, Sec. 21, Blk. M-21, T.C.R.R. Sur.. Rig.

Wendell et al's No. 1 Johnson Bros., Sec. 1, Blk. X03.... Set 10-in. csg. 2,035 ft.; S.D.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson ..... S.D. 4,300 ft.

Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line Sec. 171, Blk. F, H.&T.C. Sur.... Rig.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Spudded and S.D.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE Sec. 612, H.&T.C. Sur. ..... S.D. 3,128 ft.

Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... S.D. 4,433 ft. for 5-in. csg.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch ..... Small show oil 1,133-40 ft.; sand; S.D. 4,000 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 2 Warrick-A, center S 160 acres Sec. 92, Blk. 46, H.&T.C. Sur. ..... Location.

Barnsdall Oil Corp.'s No. 1 L. R. Hogy, NW cor. of Thomas Ross Sur. ..... 20,00,0000 ft. gas 3,205 ft.; T.D. 3,234 ft.; 900 ft. oil 3,226-34 ft.; show water 3,275 ft., P.B. to 3,257 ft., two 5-qt. shots at 3,224-36 ft., no results, to pump. Shot with 10 qts. 3,256-64 ft., no increase.

Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W of NE cor. Sec. 1, Eustis Sur. ..... Drlg. 765 ft.

Dixie Creek Oil Co.'s No. 1-A Sneed, Jr., 330 ft. N and W of SE cor. E½, Sec. 65, Blk. 3, G.M. Sur. ..... 400 ft. oil 3,305-15 ft., H.F.W. at 3,330 ft., to P.B.

Dixie Creek Oil Co.'s No. 4-A Sneed, Jr., 330 ft. S and W of NE cor. E½, Sec. 65, Blk. 3 ..... 10,000,000 ft. gas 2,835-55 ft.; 50 ft. oil 3,304-05 ft.; H.F.W. at 354 ft.; P.B. to 3,336 ft.

Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.

McMan Oil & Gas Co.'s No. 2 Sneed, 2,260 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur., located in M. Robinson Sur. ..... Location.

Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur.... Drlg. 2,400 ft.

Phillips Pet. Co.'s No. 4 Sneed, 1,600 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur.; located in M. Robinson Sur. ..... Rig.

MOTLEY COUNTY

Explin. Co.'s No. 1 Tillson ..... Drlg. 1,720 ft.

Explin. Co.'s No. 2 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. ..... Fishing 4,700 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A ..... Formerly abd. at 5,240 ft.; small show 36 gravity oil 5,288-91 ft.; show oil brown sand 5,710-15 ft.; set whipstock to drill by tools 5,827 ft.

WHEELER COUNTY

Angus et al's No. 2 Morgan, C E½ NW NE, Sec. 93, Blk. 17, H.&G.N. Sur. ..... S.D. 1,175 ft. for pipe.

Arnold Oil Co. et al's No. 1 Ritchey, 420 ft. from E and 460 ft. from S lines of NW cor. Sec. 5, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,530 ft.

Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-8, H.&G.N. Sur. ..... S.D. 2,800 ft.

Edwards et al's No. 2 Trostle, C NW of NW Sec. 130, Blk. 22, H.&G.N. Sur. ..... Drlg. 1,225 ft.

Fain McGaha and Humble's No. 1 Noel, 330 ft. each way from NE cor. S½ SE, Sec. 54, Blk. 24, H.& G.N. Sur. ..... Fishing 210 ft.

Gibson Oil Co.'s No. 6 Bentley, 330 ft. S and E of NW cor. SE of SE Sec. 43, Blk. 24, H.&G.N.R.R. Sur..... Rig.

Hartley et al's No. 1 Burchman, C NW SE, Sec. 91, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,820 ft.

Johnson & Co.'s No. 1 Purcell, 420 ft. from N line and 570 ft. from W line NE, Sec. 50, Blk. 17, H.&G.N. Sur.. Drlg. 985 ft.

Lone Star Co.'s No. 1 Hicks, C SW NE, Sec. 52, Blk. 17, H.&G.N. Sur. ..... Rig.

Lone Star Gas Co.'s No. 3 Jones, C NW NE, Sec. 1, Blk. 25, H.&G.N. Sur. ..... Drlg. 1,510 ft.

Lone Star Gas Co.'s No. 4 Jones, center of SE of NE Sec. 1, Blk. 24, H.&G.N. Sur. ..... Location.

Lone Star Co.'s No. 1 Shelton, C NE SE, Sec. 22, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,840 ft.

Mudge Oil Co.'s No. 1 Hicks, C SW of SW Sec. 52, Blk. 17, H.&G.N.R.R. Sur. ..... Rig.

L. W. Rook's No. 1 M Nelson, C SW NE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,960 ft.

The Texas Co.'s No. 1 Gordon, 330 ft. N and 405 ft. W of SE cor. of NW Sec. 91, Blk. 17, H.&G.N.R.R. Sur.. Rig.

J. D. Whittington et al's No. 3 Williams-Laycock, 330 ft. N and E of SW cor. SW, Sec. 9, Blk. 27, H. &G.N.R.R. Sur. ..... Drlg. 1,860 ft.

L. W. Rook's No. 2 A. Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Rig.

Vaughn et al's No. 1 Woodley, C NE of NE Sec. 21, Blk. 24, H.&G.N. Sur. ..... Rig.

Wisch Kamper's No. 1 Adamson, C NE SE, Sec. 50, Blk. 17, H.&G.N.R.R. Sur. ..... Spud. & S.D.

Wisch Kamper's No. 1 Parsons, C NW NW, Sec. 53, Blk. 23, H.&G.N. Sur. ..... C.O. 1,950 ft.

Wisch Kamper's No. 2 Wisch-Kamper, 175 ft. N and 164 ft. E of SW cor. NE SW, Sec. 86, Blk. 23, H. &G.N. Sur. ..... Drlg. 1,427 ft.

Upham Gas Co.'s No. 1 Raybo, C S¼ NW NW, Sec. 105, Blk. 23, H.&G.N. Sur. ..... Rig.

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Good Completions in Eastern Fields

All Three Divisions, Southeast Ohio, Southwestern Pennsylvania and West Virginia, Represented by Producers

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Feb. 4.—A review of development work in the eastern fields shows the good wells completed were distributed over a larger area than for a great many months. All three divisions, West Virginia, Southeast Ohio and Southwest Pennsylvania, completed good producers.

Not much new work has been making progress towards completion owing to the bad weather. When this work is under way it will show quite an increase in operations.

SOUTHWEST PENNSYLVANIA

The old Southwest Pennsylvania fields had the best producers for the week. The new Fifth sand pool in Buffalo Township, Butler County, completed another. It is the Phillips Gas & Oil Co.'s test on the Albert Hughan farm. It was drilled in last Thursday and produced 1,000 bbls. the first 24 hours and at this date is holding up at 500 bbls. a day. At present the pool has an aggregate production of a little more than 1,000 bbls. a day. The location of the Hughan farm well is 1,500 feet southwest of the Chester Harvey farm, previously reported John Harvey, and shows a southwest extension. There are six wells drilling and two are due in the sand this week.

Washington County, not to be outdone by the gusher pool in Buffalo Township, Butler County, comes to the front with a very good producer. It is the Hope Construction & Refining Co.'s test on the Hiram Robinson farm, in Followfield Township, Washington County, about 5 miles east of the Scenery Hill gas pool, which caused quite a flurry two or three years ago. The well on the Robinson farm got its production in the Bayard sand at a total depth of about 2,900 feet. When the pay was struck in the Bayard sand, when drilled in last week, it started to flow at the rate of 300 bbls. a day. The gauge shows that it is holding up at 235 bbls. a day. This is an unusually good well for the Bayard sand. The Hope Construction & Refining Co. has a small pumper on the adjoining farm. The Greensboro Gas Co. has several light pumpers in the immediate vicinity. The territory, however, is nearly all leased to the large gas companies and was primarily regarded as gas territory.

In Salem Township, Washington County, the Southern Oil Co. has completed No. 34 on the Hall heirs' farm. It is a 5-bbl. pumper.

In Wayne Township, Greene County, the Philadelphia Gas Co. has a gasser in the Bayard sand at a test on the Isaac Phillips farm. In Aleppo Township, the Manufacturers Light & Heat Co.'s test on the W. H. Courtright farm is a gasser in the Big Injun sand.

On the old Economy tract in Economy Township, Beaver County, the Laughner Oil Co. has completed No. 94 and showing for an 8 or 10-bbl. pumper. It has been many years since a well was completed in this tract.

SOUTHEAST OHIO

In the SE Section 12, Reading Township, Perry County, the Preston Oil Co. completed and shot in the Clinton sand a test on the Henry Saffell farm. The well produced 190 bbls. the ensuing 24 hours. The initial production of this well is greater than any completed for some time.

In Perry County the Pure Oil Co.'s second test on the Charles Baker farm, NE Section 21, Harrison Township, produced 100 bbls. the first 24 hours after drilled through and shot in the Clinton sand.

In the NE Section 20, Reading Township, Perry County, the Planet Oil Co. completed and shot in the Clinton sand a second test on the David Petty farm. It produced 80 bbls. the first 24 hours.

In the NW Section 9, Harrison Township, Perry County, Crowley, Carr and others have completed and shot in the Clinton sand a test on the William Crowley farm. It produced 50 bbls. the first 24 hours.

Licking County

In the NE Section 23, Hopewell Township, Licking County, the Pure Oil Co.'s second test on the Arthur Orr farm swabbed 35 bbls. the first 24 hours after drilled through and shot in the Clinton sand.

In Section 12, Reading Township, Licking County, the Preston Oil Co. has completed in the Clinton sand a second test on the Tennyson Crist farm, good for 20 bbls. At Bollin Mills, Section 6, Vinton Township, Vinton County, Townsend and others have completed a test on the Edward Quick farm. It is a gasser in the Berea grit good for 1,500,000 feet.

In Sutton Township, Meigs County, C. D. Sloan & Co. have started to drill on the A. E. Carnahan farm. In the same district, the Pure Oil Co. is drilling another test on the Krider farm.

In Section 33, Independence Township, Washington County, Herman Schramm & Co. have completed a test in the second Cow Run sand, No. 9 on the J. H. Ward farm. It is dry and abandoned. In Newport Township, Mendchall Brothers & Co. have completed a test on the Mendenhall heirs' farm. It is a 2-bbl. pumper in the salt sand. In Grandview Township, the Hill Top Oil & Gas Co. has a gasser in the Big Injun sand at No. 5 on the Cochran heirs' farm. Thomas McVey and others have a rig up for another test on the D. W. Burnett farm.

Noble County

In Section 2, Jackson Township, Noble County, Urban Nau and others have a duster in the 800-foot sand on the L. C. Wilson farm. In Section 17, Rich Brothers & Co. have a 7-bbl. pumper in the Berea grit. In Elk district, B. C. Robinson & Co. have a 3-bbl. pumper on the Anna C. Walker farm. In Jefferson Township, the Cain Oil & Gas Co. has a 3-bbl. pumper at No. 3 on the Alice Mallet farm.

In Section 13, Franklin Township, Monroe County, the Swasie Oil Co. has a duster in the Berea grit on the Harry & Luetta Crum farm. In the same section and township, the Perry Oil & Gas Co. has a 3-bbl. pumper in the Big Injun sand on the John Zwick farm.

Perry County

In Section 18, Harrison Township, Perry County, the Ohio Fuel Gas Co. has a gasser in the Clinton sand on the M. T. & F. C. Moore farm. It is good for 500,000 feet. In Section 8, same township, the Northern Development Co.'s second test on the Pemberton Brothers' farm is a 15-bbl. pumper in the Clinton sand.

In the NE of Section 10, Wheeling Township, Guernsey County, the Preston Oil Co. has completed in the Niagara lime a test on the W. R. Alloway farm. It is a gasser good for 2,000,000 feet. In Section 10, same township, the Ohio Falls Oil, Gas & Supply Co. has completed No. 3 on the J. O. Alloway farm. It is a gasser good for 1,000,000 feet in the same formation.

Washington County

In Section 10, Aurelius Township, Washington County, Henry Wickens has drilled through the Gordon sand No. 6 on his own farm. It is dry in this formation, but has a light gas pressure in the Berea grit. In Section 26, Muskingum Township, the Miracle Oil Co. of Ohio has completed in the Macksburg 800-foot sand another test on the Joseph S. Devol farm. It is a duster. In Adams Township the Wiper Oil Co. has completed a test on the J. Wilkins farm. It is dry in the Macksburg 500-foot sand.

Dry Hole in Hocking County

In Section 23, Washington Township, Hocking County, the Gordon Oil Co.'s No. 3 on the Charles J. Meldrim farm is dry in the Gordon sand.

In the SW of Section 5, Harrison Township, Perry County, the Preston Oil Co. has completed and shot in the Clinton sand a test on the John Larralere farm. It produced 50 bbls. the first 24 hours. In Sutton Township, Meigs County, the Wehrle Co. has started to drill on the William P. Cross farm.

WEST VIRGINIA

In Ravenwood district, Jackson County, the South Penn Oil Co.'s test on the C. S. McCarty farm, completed last week and showing for a 40-bbl. producer in Big Injun sand, has been shot and produced 85 bbls. the ensuing 24 hours and has increased to 114 bbls. a day. The well is near the Geary district, Roane County line, and shows an extension into Jackson County.

In Scott district, Boone County, the Owens Bottle & Machine Co. has completed No. 10 on the Little Coal & Land Co. property. It is a gas well good for 218,000 feet. In Sherman district, same county, the same company has completed No. 17 on the Peytonia Coal & Land Co. tract. It is a gasser good for 236,000 feet. In Scott district, the Mountain State Gas Co.'s No. 3 on the J. C. Hill farm is a light gasser. In Sherman district the Pure Oil Co. has a 10-bbl. pumper at No. 239 on the Williamas Coal Co.'s tract.

In Stonewall district, Wayne County, Meabon & Huffman have a gasser in the Big Injun sand on the Wayne Osborn farm. In Teays Valley district, Putnam County, the Kuhn Oil & Gas Co.'s test on the C. R. Hodges farm is a duster in the Berea grit.

In Sherman district, Calhoun County, the Virginian Gasoline & Oil Co. has a 20-bbl. pumper in the Big Injun sand on the Arminda Elliott farm. In Lee district the Calhoun Oil & Gas Co. and others have completed in the same formation a test on the W. J. Anderson farm. It is a gasser. In Center district, W. P. Bickel has a gasser in the Big Injun sand on the John M. Hamilton farm.

Jackson County

Development work in Ravenwood district, Jackson County, is increasing. The Heck Oil Co. is drilling on the O. J. Brown farm. The same company has the rig completed for a second test on the same farm. The South Penn Oil Co. is drilling a second test on the C. S. McCarty farm. The Heck Oil Co. is drilling on the D. D. Warren farm. Across the dividing line in Geary district, Roane County, the United Fuel Gas Co. is drilling on the J. M. Seamon farm.

Muskingum County

In Muskingum Township, Section 13, Muskingum County, Ohio, the Ohio Fuel Gas Co. has a gasser at a total depth of 3,457 feet, at No. 3 on the George Shaw farm. In Hopewell Township, the

(Continued on Page 105)

NEW DAVIESS COUNTY, KENTUCKY, TEST MAY JOIN PRODUCING AREAS

By Whit

OWENSBORO, Ky., Feb. 4.—A few scattered completions are reported from the eastern area of Kentucky, although new work is rather quiet. In District 5, Wayne County, in the Monticello Field, Porter, Abbott and others found a dry hole in No. 9 on the Coffey-Otts farm. The Barrier Oil Co.'s No. 17 is due to come in shortly on the Randall Ramsey farm.

In the Irvine Field of Estill County, District 7, the Adma Oil Co.'s No. 15 on the H. C. Stewart farm is only a 1-bbl. pumper. In District 8, the Superior Oil Corp.'s No. 29 Thomas Henderson farm, is a duster, while the same company's No. 10 James Griffin is a 2-bbl. pumper and No. 23 on the A. F. West and others farm is a 3-bbl. pumper. In District 10, Kelly Fulks has a 2-bbl. pumper in No. 5 on the W. P. Isaac's farm.

Week's Work

A summary for the week from the Kentucky fields shows 27 completions, 15 producers with an initial production of 273 bbls., 12 dry holes and no gas wells.

County—	Oil wells Comp.	Prod.	Dry
Ohio	11	5	120	6
Daviess	4	4	110	0
Allen	3	1	25	2
Hopkins	2	0	0	2
Barren	1	1	10	0
Estill	5	4	8	1
Wayne	1	0	0	1
Total	27	15	273	12

Western Kentucky

One of the important tests in advance of production will be closely watched by the Owensboro Field because if oil or gas is found it will bring the producing area of Daviess County closer to the headquarters of the Tri-County Field of Ohio-Daviess-Hancock Counties. The contractors are Hupp and Duff, formerly operators in the Johnson-Magoffin fields of eastern Kentucky. The location is on the Mrs. Clare Keene farm, 3 miles west of Owensboro, and a good mile east and a little north of the hole drilled on the George H. Rudy some months ago which failed to get oil in commercial quantities. However, the structure developed in the Rudy test led to the belief there is oil and probably good gas deposits in that vicinity. Gas of sufficient quantity in that section would be even more valuable because of the market offered by Owensboro and near-by towns.

Ohio County Wells

Dry holes are usually found close to good producing wells in most fields developed in Kentucky. On the rich Bob Hamilton south 100 acres, the Cumberland Petroleum's No. 14 proved a duster. This is in the Weller Pool, usually called the Ambrose Pool. No. 15, same farm, is under way as is No. 16 on the north 176 acres, a part of the same farm, which has been operated by the Cumberland company which later purchased the 100-acre lease of Daley and Lowman, and now holds the entire farm consisting of 276 acres.

In the Sunnydale area, the Sunnydale Oil & Gas Co.'s No. 1 on the T. H. Smith 64 acres, was dry at 700 feet.

Leeper Oil Co.'s No. 4 E. Ford farm, in the Weller Pool, was a duster. Chester Oil Co.'s No. 1 H. C. Ford farm, in

(Continued on Page 105)

It cost him $980.00

just because he failed to . . . . .

Driller Smith has a fishing job. He borrows a fishing tool from Driller Jones on the next location. Driller Jones has A.P.I. joints but Driller Smith has not. The tool won't fit so he goes to the machine shop and has it recut, losing one half day. While he is shut down his pipe sticks in the hole. He loses ten days and the fishing job costs him $1,000.00. He failed to standardize. If he were using "Brewster" A.P.I. joints his loss would have been about $20.00. *Think it over.*

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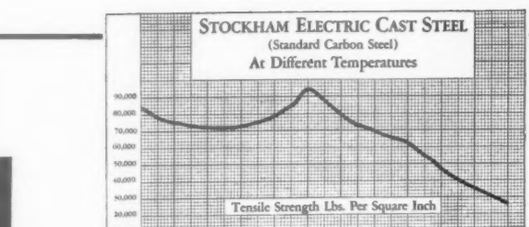
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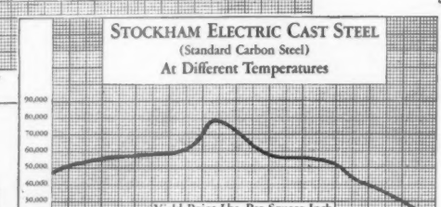

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Production in Vinton County, Ohio

Revival of Oil Field Drilled 33 Years Ago by Ohio Oil Company. Southern Illinois Looks More Inviting

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 2.—Little was accomplished by the drill in any portion of the Central West fields, especially in the Lima, Indiana, Illinois divisions, but Central Ohio did very well considering the weather.

In the old Lima Field of northwestern Ohio, Jameson and others drilled in a dry hole at a test on the Curtis Jameson farm, NW quarter W half Section 15, Webster Township, Wood County. The well is 735 feet from the south line and 1,093 feet from the west line of the lease. Sand was topped at 1,230 feet and salt water at 15 feet in the sand. George Huffman and others have a rig in for No. 4 on the Mary Reitzel farm, Section 23, Perrysburg Township, and W. E. Donnelly has started No. 1 on the Charles South farm, Section 4, Liberty Township, same county.

Northeast of Lima, in Bath Township, Allen County, Neely & Nolden are drilling No. 3 on the Philo Bassett, Section 13. C. A. Peavey and others are drilling No. 3 on the C. G. Vore, Section 12, and H. F. Kelly and others are drilling No. 2 Minnie K. Snyder, Section 14, same township. Metzger Brothers are drilling No. 4 on the Henry Metzger, Section 22, Spencer Township, same county.

In Scott Township, Sandusky County, the Ohio Oil Co. abandoned No. 8 J. F. Hutchinson, Section 6; No. 14 M. and E. Phister, Section 4; No. 10 S. L. Lehman, Section 34. The Riley Co. also abandoned Nos. 1, 3 and 5 on the Goodale farm, Section 19, Woodville Township, same county.

In Seneca County, Liberty Township, in the Murphy Pool, W. E. Richards and others are drilling No. 3 Lawrence Scherger, Section 27, and Banks and others are drilling No. 1 on the R. Nightswander farm, Section 25. In Jackson Township, the Columbia-Tiffin Oil Co.'s test 300 feet from the north line and 1,200 feet from the west line of the John Soule farm, in the SW quarter Section 22, was dry at a total depth of 1,330 feet and 60 feet in the sand. In the same township, the Ohio Oil Co. abandoned No. 4 J. F. Hartlan, Section 15, and A. R. Smith is drilling No. 16 on the H. L. Smith farm, Section 8.

Near Waterville, in Waterville Township, Lucas County, the Waterville Gas & Oil Co. has a rig in for No. 1 on the Eliza Hutchinson farm, Section 21.

CENTRAL OHIO

There were a few less completions in the active Central Ohio Field than for the previous week which can be accounted for by the weather. The week shows 16 completions, 4 oil producers, with an initial of 15 bbls., 7 dry holes and 5 gas wells. There were 15 new locations staked out and 15 new wells started rigging up or spudding.

New Berea Production

One of the newest developments in Berea production is being carried on in Vinton County. Very little attention has been drawn to this field as the whole field has been under lease for several years. The development, conducted by the Ohio Oil Co. 33 years ago, proved up a nice little pool on the Standert-Fuller and Beckley farms. At that time 20 wells were drilled in with an average of about 10 bbls. initial. This pool seemed to be outlined by 4 dry holes, one on the north, one on the east, one on the west and one in the center of production. The longevity of this particular sand is demonstrated by the fact that these wells are still being pumped and producing very nicely. The lease having been recently re-equipped with new tankage and power.

A while back Burley Henry, formerly a tool pusher leased 800 acres that happened to be open and organized a company known as the Co-operative Oil Co. at McArthur. This new company purchased a drilling machine and made a location directly west of the Ohio Oil Co.'s west dry hole, across an 80-acre piece, and drilled in a well making 6 bbls. and 105,000 feet of gas. No. 2 on the Beckley came in at 8 bbls. and is now making 5 bbls. No. 3 is a 2-bbl. pumper. No. 4 came in doing 3 bbls. and 60 bbls. of water and has been abandoned. Then moving over on the northeast corner of the farm No. 5 came in flowing 15 bbls. and making 525 feet of gas. No. 6 pumped 15 bbls. and is now making 9 bbls. No. 7 pumped 8 bbls., and a location was made 400 feet west and 500 feet north of No. 7 on the Garfield Brooks, and known as Brooks No. 1.

On the Harvey Brooks 40 acres, Section 3, adjoining the Garfield Brooks and the William Beckley, Salsbury & Taylor of Mount Vernon drilled in a well which makes 3 bbls. This well was shot and was never cleaned out and is being pumped by the farmer who has had considerable trouble on account of the cups cutting out and has never been able to give this well a fair test. This development is in Knox Township, Vinton County.

Vinton County Locations

In the southern direction in Section 1, Townsend and others drilled in a 1,500,000-foot gas well and have made a location on Leo Quick farm and are now drilling a test there. In the SE cor. Section 7, Knox Township, on the Wesley Walburn farm are 2, 5 and 7-bbl. wells, also a 460,000-foot gas well and one doing 786,000 feet. Townsend and others on the James Queen have a 4-bbl. pumper, 1,000,000-foot gas well and a well drilling. This is in Section 1. Townsend and others on the William Dearth 42-acre piece have two wells, one making 2 bbls. and one making 9 bbls. Immediately south of the William Dearth there is one on the Harry Tedrow making 5 bbls. On the Miles Townsend adjoining farm a 5-bbl. well and 500,000 feet of gas. On the Minerva Hooper are two 5-bbl. wells. These are adjoining offset wells on the four pieces and are so located that one power takes care of them all.

In Fractional Section 3, Knox Township, on the Charles Clark, Kinsell & Bell drilled in a 500,000-foot well and there being no pipe line in this field sold the well to the Gordon Oil Co. of Logan, Ohio, which intends to pull the pipe. A delegation of operators called on the Ohio Fuel Gas Co. and obtained assurance that if the production of gas was as represented the company would run a branch of a lower pressure line into the field at a price of 18 cents per 1,000 feet for any gas so produced. The Ohio Fuel Gas Co. now has a geologist and a checker in the field checking the probable production. The acreage in this field is now held by the Pure Oil Co., the Carter Oil Co., Hope Construction & Refining Co., Ohio Oil Co., Co-operative, Salsbury & Taylor, Hulse & Kundtz, Bishop & Patten, and Davidson & Mock. Spirited leasing was done in this field about three months ago, some companies paying as high as $5 per acre for acreage a mile ahead of production. New developments consist of a location on the John Martin. B. F. Cline and Homer Harkins. Patten & Bishop having joined with Hulse Kundtz on a joint well testing their respective blocks. Most of these leases are long termed and new developments in all probability will be opened by various offset wells that should be drilled this spring, there being about 15 locations that require offset drilling. This oil is being taken by the Buckeye Pipe Line Co. and goes as Corning grade.

Work by Counties

In Ashland County, Perry Township, Robinson and others drilled a dry hole in No. 7 on the Riley Donelson, Section 19. In Green Township, the Ohio Fuel Gas Co.'s No. 1-3,321 on the J. F. Kettering, Section 35, was dry, as no sand was found. Same company made a location for No. 1-3,430 on the C. M. Palmer, Section 6, Hanover Township. In Orange Township, the Logan Gas Co. is drilling No. 1,3,066 on the Henry J. Weikel, Section 14, and the Kemrow company made a location on the John J. Shinabarger, Section 35.

In Medina County, Hinckley Township, the Ohio Fuel Gas Co.'s No. 1-3,368 on the Harry A. Redmond, Lots 56, 65, proved a dry hole. East Ohio Gas Co. is drilling on the J. and A. Jelemsis, Lot 2, Chatham Township.

In Lorain County, Lagrange Township, the Ohio Fuel Gas Co. made a location for No. 1-3,446 on the Wesley Tran farm.

In Wayne County, Chester Township, the Ohio Fuel Gas Co..'s No. 2-3,394 on the Sarah Landis, Section 9, is an average gas producer.

In Holmes County, Richland Township, the East Ohio Gas Co.'s second test on the G. O. Ledbetter, Section 7, is reported a duster. Ohio Fuel Gas Co. is drilling No. 1-3,424 on the John J. Harshberger, Section 6, Paint Township. Same company's No. 1-3,031 on the Cora Smith, Section 5, Prairie Township, is reported good for 2 bbls. after cleaning out.

In Knox County, only one new well started spudding and that is the Ohio Fuel Gas Co.'s No. 1-3,404 on the Emanuel Rine, Section 2, Jackson Township. The Pure Oil Co. is drilling on the Parker J. Marvis, same township. I. E. O'Hail is drilling on the R. P. Hipp, Section 21, Jefferson Township.

In Coshocton County, Clark Township, the Ohio Oil Co. is drilling a second test on the A. G. Eppley. Same company made a location on the Ellis McKelvey, Section 10, Monroe Township.

Summitt County

In Summitt County, Franklin Township, F. A. Brendall and others brought in a nice gas well in a second attempt on the Charles Hollinger, Section 33, at from 3,921-36 feet. East Ohio Gas Co. is drilling on the George Hess, Section 6, Richfield Township, and made a location on the Peter Newcomer, Section 18, Green Township, and is drilling No. 1 on the G. Chenowith, Section 4, same township.

In Licking County, Perry Township, the Preston Oil Co.'s No. 1 G. C. Mauk, Section 16, is reported good for 5 bbls. at from 712-26 feet. Same company is drilling No. 12 James Wright, Section 16, same township. In Fallsbury Township, the Emerald Petroleum Co. made a location for No. 3 on the John E. Martin, Section 10. Hulse & Kundtz, staked a location on the A. A. Moran, Section 11, and the Preston Oil Co. is drilling No. 4 N. E. Morris, Section 10. In Madison Township, the Wehrle Gas Co.'s No. 4 Arthur Darnes is drilling deeper, and George H. Long's No. 6 Long farm, Section 24, is reported good for 3 bbls. at from 707-17 feet.

In Athens County, Lee Township, the Logan Gas Co.'s No. 1-3,061 on the W. E. Baughman, Section 12, is a 2-bbl. pumper at from 1,273-77 feet, which is the upper Berea sand. Ohio Fuel Gas Co. made a location for No. 2-3,434 on the A. and E. Linscott, Section 3, Ames Township. Same company made a location for No. 1-3,431 on the Sugar Creek Coal & Mining Co., Section 16, Dover Township. Same company made a location for No. 1-3,373 on the H. E. Winters, Section 34, Troy Township. In Berne Township, the same company is drilling No. 3-3,432 on the E. C. Glass, Section 30, and staked three new locations, in No. 1-3,433 on the Guy H. Kasler, Section 33; No. 1-3,440 on the E. J. Elliott, Section 35, and No. 4-3,442 on the Amy Selby, Section 30. In Cartnage Township, the Logan Gas Co.'s No. 2-3,054 on the Mary Barnhill, Section 32, pumped 6 bbls. from the Berea sand at from 1,757-59½ feet.

In Meigs County, Sutton Township, Tyree and others' No. 5 James Stobart, Section 17, was a dry hole, the depth being 602 feet. No. 6 same farm, is drilling.

Jackson County

In Jackson County, Franklin Township, the Ohio Fuel Gas Co.'s No. 3-3,310 on the James A. McClure, Section 27, is a nice gas well in the Clinton, the pay found between 2,582-96 feet, total depth 2,599 feet. Same company's No. 1-3,218 on the George N. House, Section 3, Coal Township, is also a fair gas producer in the Clinton, with pay sand from 2,657-67 feet, total depth 2,671 feet. Same company drilling No. 1-3,283 on the J. W. Broyles, Section 35, and made locations for No. 1-3,438 on the Leonard T. Rice, Section 23, and No. 1-3,441 on the Lucy A. Hawks, Section 12, same township.

In Vinton County, the Co-operative Oil Co. is drilling No. 1 on Garfield Brooks, Section 3, Knox Township. In Lawrence County, Symmes Township, the Ohio Fuel Gas Co. is starting the drill at No. 1-3,390 on the H. L. Handley, Section 15.

In Guernsey County, Wheeling Township, Blackstone and others' No. 2 J. C. Galloway, Section 10, is a good gas well at a total depth of 3,496 feet, which is the Niagara lime formation. In this well the top of the Niagara was found at 3,368 feet and pay from 3,488-96 feet. In Westland, Township, the Kemrow company's No. 1 George Scott, Section 8, is dry. Injun sand in this well was found from 665-705 feet and Squaw sand from 800-10 feet.

Outer Edges

In Morgan County, Marion Township, the Ohio Fuel Gas Co.'s No. 5-3,246 on the Hiram Thomas, Section 17, is a very fair gas producer from the lower Cow Run sand at from 587-91 feet. Same company has a fair gasser in No. 1-3,402 on the Simon Remy, Section 29, in the lower Berea sand at from 1,451-59 feet, total depth 1,488 feet. Same company is drilling deeper No. 1-2,760 on the Edward Hammond, Fractional Section 34. Penn Contracting Co.'s test on the B. G. Hoon, Lot 5, is reported showing for 1,000,000 feet of gas in the Salt sand at 718-21 feet. Same company is drilling a second test on the C. A. Ewart, Fractional Section 5, Penn Township, same county. The Ohio Fuel Gas Co. is drilling No. 1-3,337 on the James Heskett, Section 2, same township.

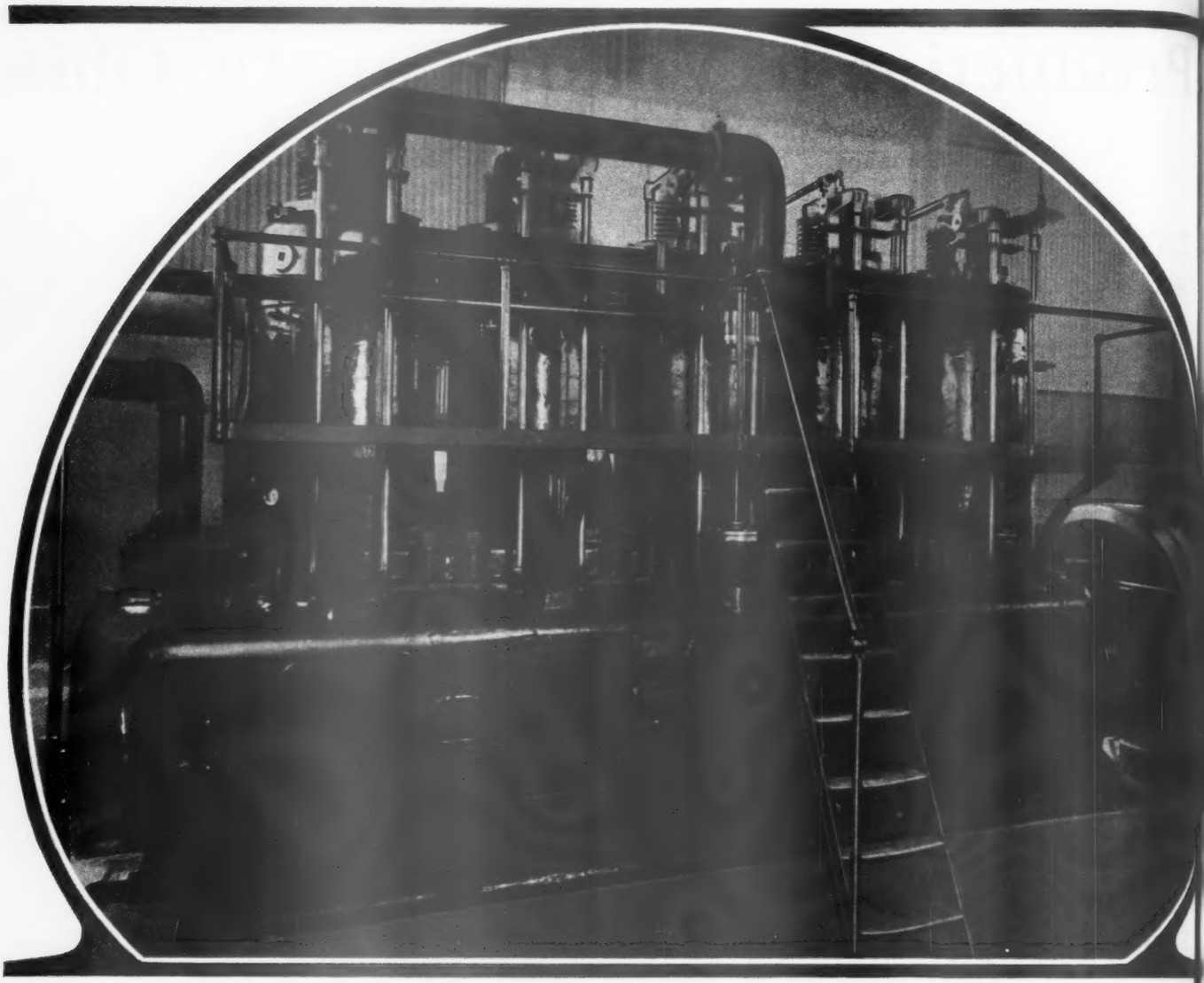
In Belmont County, Herbert Howell and others are starting a test on the C. J. and M. E. Huntsman, Section 25, Somerset Township.

The Ohio Fuel Gas Co. reported a location for a test on the George Schlarb farm, Section 14, Liberty Township, Washington County.

INDIANA

Work in the oil fields of Indiana is

(Continued on Page 105)



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Hope vertical gas engines are well adapted to direct driving electric generators. They require a minimum of floor space, have a low overall installation cost, and they are a more reliable and cheaper source of power than purchased current. The installation pictured above shows a five cylinder 450 B.H.P. Hope gas engine driving a 375 K.V.A., 60 cycle alternator in the United States Gypsum Company's plant at Sweetwater, Texas. Let a Cooper engineer show you how much you can save by installing your own power plant.

COOPER

Hope Engines Now Built And Serviced By Cooper

THE C. & G. Cooper Company has purchased outright the manufacturing division of the Hope Engineering Company, including the well-known Hope vertical gas engines. The factory in which they were built at Mt. Vernon, Ohio, is being operated as a unit of the Cooper plant.

The complete line of Hope vertical engines is to be still further improved and many details of design, developed on Cooper horizontal engines, have already been added. They will be built in standard sizes ranging from 60 to 540 B. H. P. for every power purpose. For the present the 170 - 250 - 360 - 450 and 540 H. P. sizes will be built on a quantity production basis.

All Hope Engineering sales offices will continue to sell Hope engines. You may, however, if you prefer, buy Hope engines through any Cooper sales office. In either case, please remember that Coopers assume full responsibility for the quality of materials and workmanship and for the field service on all Hope vertical engines sold in the future.

Cooper engineers are convinced that the present design of Hope engine is the best vertical engine in the field and are interested in making it still better. This line of vertical engines will be an addition to the regular Cooper line of horizontal engines and compressors which are being built in sizes from 50 to 1500 B.H.P. This combined line of vertical and horizontal engines will now permit you to use Cooper quality machinery and service for all your engine and compressor requirements.

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ENGINES

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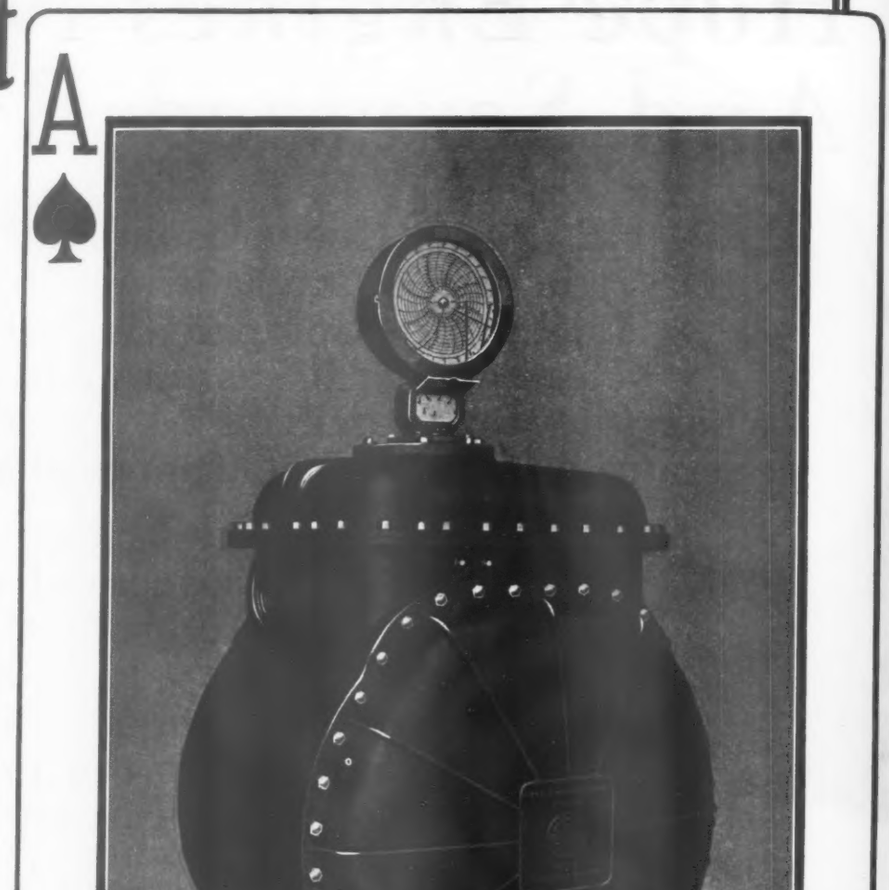

THE modern meter of the Ironcase family was dealt to the measuring industry more than three years ago. It is trump today, having strongly established its greater values for practically all conditions of gas measurement.

The modern Ironcase sizes (80-B, 250-B and 500-B) are much smaller and much lighter than the old 100-B and 200-B sizes which had been trustworthy for many years although somewhat cumbersome.

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Natural Gas Developments

MICHIGAN FRANCHISES STILL BEING SOUGHT

MUSKEGON, Mich., Feb. 2.—Which of several pipe lines will serve Grand Haven and intervening cities and villages with natural gas from the Muskegon Field was further involved by the announcement that the Reed Oil Co. is considering contracting to serve at least the Eagle-Ottawa Leather Co. and perhaps the city light and water plant and other Grand Haven industries. The Reed company has offered to pipe natural gas into Grand Haven for considerably less than 18 cents per 1,000 feet, an offer recently made William Hatton, president of the leather company, by the Muskegon Pipe Line Co.

In the meantime decision on the proposed franchise of the Michigan Pipe Line Co., which was to have been voted upon at a special election January 31, has been postponed at least until the spring election in March as it will be illegal to hold a special election before the regular election. William M. Connelly, president of the Ottawa Oil Corp., announced that he had severed connection with the Michigan Pipe Line Co. and that it was now owned by H. A. Brink, of Grand Haven, and C. L. Bullock, of Muskegon. The latter two plan to incorporate as the Industrial Gas Co. of Michigan if their request for a city franchise in Grand Haven is granted in March.

The request of the Muskegon Pipe Line Co. for a franchise to supply the residents of North Muskegon, the only part of Greater Muskegon not now using natural gas, was passed upon first reading by the city council. After favorable action it will be submitted to a vote of the residents.

J. B. Reed, vice president of the Reed Oil Co., offered to lay a line to North Muskegon if 50 residents would guarantee him $50 each for the cost of the line. This offer was prompted, it is believed, by the desire to flow the Reed company's No. 1 Young, SE NE Section 11-10-17, Laketon Township, at full capacity without wastage of gas. The well has been making between 800 and 1,000 bbls. of oil when allowed to flow wide open and the operators are desirous of getting all the oil they can.

Rock pressure of one of the wells in the congested part of the field in Muskegon Township which has been selling gas as long as any well in the field has dropped from 920 to 700 pounds. This well is the Johnson Oil Refining Co.'s No. 1 Smith, SE SE Section 5-10-16.

Rock pressure of Balch Brothers' No. 1 on the Muskegon County tuberculosis sanatorium also is but 750 pounds. Both this and the Johnson-Smith well were completed as dry gassers in the Dundee formation, which is most productive for gas in the Muskegon Field. The drop of rock pressure is indicative of the rapid decrease in the amount of gas which may be expected to be recovered from the Muskegon Township area.

GAS FOR INDEPENDENCE, MO.

KANSAS CTY, Mo., Feb. 2.—Distribution has been begun of 8-inch pipe for a line to furnish natural gas to Independence, Mo. Several months will be required to complete the line. The Connor & Son Construction Co. of Kansas City has been awarded the construction contract by the Missouri-Kansas Pipe Line Co. of Kansas City, which is to furnish the gas. The supply will come from fields along the Missouri-Kansas state line south of Kansas City.

The pipe line company is to sell the natural gas to the Jackson County Light, Heat & Power Co. The latter concern for several years has been furnishing artificial gas to its customers at $1.60 per 1,000 feet for the small consumer.

CO-ORDINATION IN RESEARCH URGED AT PACIFIC GAS CONFERENCE

By H. C. Abell*
Chairman, Committee on Co-ordination of Scientific and Marketing Research of the American Gas Association.

The function of the Special Committee on Co-ordination of Scientific and Marketing Research of the American Gas Association is to formulate definite policies on which the association can act on all research matters. It is often difficult to determine the relative value of proposed lines of research. Much research is being done throughout the country of which the association has only the faintest knowledge, nor is the association in a position to assist in any way other than research activities of which it has knowledge.

The various sections of the association have to some extent different opinions regarding research work. Some appear to think that management, accounting, commercial, etc., should not be considered as a part of pure research investigation. The committee suggested research investigation in all and every branch of the business. The committee concluded that the research activities of the gas industry should extend beyond mere technical research. It, therefore, suggested as research problems many subjects which would include scientific management, education, accounting, production, distribution, commercial, industrial and utilization, rates, sales, public relations, assistance from outside agencies, and how to manage finance and correlate the various activities into a more efficient, successful and useful utility.

The gas industry cannot remain stationary. It must either retrograde or advance when in competition with other sources of heat agencies. To advance it must initiate more economical methods of producing gas, as well as transmitting and distributing it, and must obtain uses for many hours in the year and methods of use during the hours of the present light consumption.

The problem of the maximum use of the investment is a large factor in cost because a fair rate of return, renewals and replacements, and taxes are based on investment, consequently the appliances and apparatus for utilization must be developed most efficiently and in the greatest number to take on the greatest diversified business to improve the use of the present financial outlay.

Competitive Agencies

The competition which the gas industry has from coal, oil and its by-products, electricity and other agencies is a problem which must be met both now and in the future. In the domestic and residential uses, outside of house heating, the matter of convenience, entailing no handling of waste products, ashes, etc., health, time of actual application of heat to obtain the desired result, the readiness with which the gas is obtained, etc., places the use of gas in the desired class.

The electrical investment per 1,000,000 B.t.u. delivered at the consumers' premises is about twice over that of gas and the thermal efficiency from the fuel is about one-third or less than gas. The transmission of heat by means of gas compares most favorably with the transmission of electricity.

The higher efficiency of electrical appliances cannot overcome this handicap. We must, however, not lose sight of the fact that the electrical industry is always most dilligently at work on research problems, and has and is greatly improving the cost of its service to the ultimate customer, including reductions in the former costs of the appliances, reducing the time of application to accomplish a desired result, improving the thermal efficiency of generation, decreasing the investment per unit of demand and increasing its use through interconnection, etc.

Any improvement in the load factor which might be common to gas and electricity still places gas on the same relative competitive basis, but as the output cost of gas per million B.t.u. is less than can be obtained electrically, gas would still have that advantage, unless the gas industry, through its delay in research development, permits the electric industry to obtain increasing advantages. The gas industry must contrive to keep pace with the electrical development on a competitive basis, both in regard to higher efficiency apparatus and appliances at the lowest relative cost, and in the creation of new devices and uses.

Load Factors

The average residential business yields a yearly load factor of from 25 to 30 per cent based on the maximum hourly demand and about 40 to 70 per cent based on the maximum day's output.

Assume a company is receiving $1.20 per 1,000 cubic feet for gas and that the actual output cost is 30 cents per 1,000 cubic feet, that the load factor is 50 per cent, and that the present density of sales permit the company to earn a fair rate of return in addition to all other expenses in accordance with public regulation. The total cost represented by the 90 cents received in addition to the output cost of 30 cents per 1,000 cubic feet will not increase in total dollars to a great extent by bettering the load factors, therefore if the load factor were doubled, this expense would be approxi-

(Continued on Page 106)

*Before Pacific Coast Conference of Advisory Council, and Executive Board, American Gas Association, Los Angeles.

OKLAHOMA'S 1928 GAS LINES

There were several gas lines built in Oklahoma last year. The Northern Oklahoma Utilities Co. built a 16-inch line from the Texas Panhandle Field to Enid, Okla. This was about the largest project to be recorded in the State. Harris & Haun of Blackwell, Okla., built a series of small lines serving the region around Blackwell.

In the Osage fields, the Central Pipe Line Co., a subsidiary of the Central States Power & Light Co. (which took over the old Tidal-Osage gas lease in eastern Osage County) did some work in building gas systems to serve several small towns of that territory.

In the southern Osage, the Sand Springs Home gas interests did some little construction work carrying small gas lines from the south Osage and Tulsa County gas fields to serve requirements in the towns west of Sand Springs.

AMERICA LEADS IN GAS USE

The city of Chicago consumes more gas than the combined consumption of Italy, Holland, Switzerland, Norway, Sweden and Czechoslovakia. Baltimore's output excels Switzerland, Sweden and Norway together. Portland's equals Sweden's. New York sells more gas in an average quarter than all of Italy in a year. The sales of gas, manufactured and natural, in California is in excess of the total for Continental Europe and is nearly 80 per cent that of England and Wales.

GAS CONVENTION DATES, KANSAS CITY, MAY 6-9

The dates for the annual convention of the Natural Gas Department of the American Gas Association at Kansas City have been announced as May 6, 7, 8 and 9. Samuel W. Meals, chairman of the department, has expressed the hope that natural gas company executives send as many men of their organizations as possible to the meeting as numerous matters of interest to all departments of natural gas companies will be discussed.

The convention hall in Kansas City has been selected to house the exhibits and requests for space are being received by the association.

A. W. Leonard, vice president of the Devonian Oil Co., Tulsa, is chairman of the program committee for the convention. Other committees announced thus far include:

Entertainment: T. J. Strickler, Kansas City, Mo., chairman; T. R. Weymouth, Oklahoma Natural Gas Corp., Tulsa; L. B. Denning, Lone Star Gas Co., Dallas, Tex.; and Paul Ford, Kansas City Gas Co., Kansas City, Mo.

Exhibition: F. M. Rosenkrans, Gas Service Co., Kansas City, Mo., chairman; W. E. Derwent, George D. Roper Corp., Rockford, Ill.; E. F. Schmidt, Lone Star Gas Co., Dallas, Tex.; H. Leigh Whitelaw, American Gas Products Corp., New York, N. Y.; Cal Zesky, Pittsburgh-Equitable Meter Co., Kansas City, Mo.; and C. W. Berghorn, director of exhibits, American Gas Association, New York.

Transportation: Arthur Booth, Pittsburgh Supply Co., Pittsburgh, Pa., chairman.

GAS WAR AT SHELBY

The gas war that developed at Shelby, Mont., over competition between the Citizens Gas Co. and the Great Northern Utilities Co. has reached an interesting development. The Citizens Gas Co. laid a pipe line to Shelby a few months ago and cut the existing rate. The Great Northern met this cut and went a little lower. The Citizens company then made another cut and the Great Northern replied with a cut to 20 cents per 1,000.

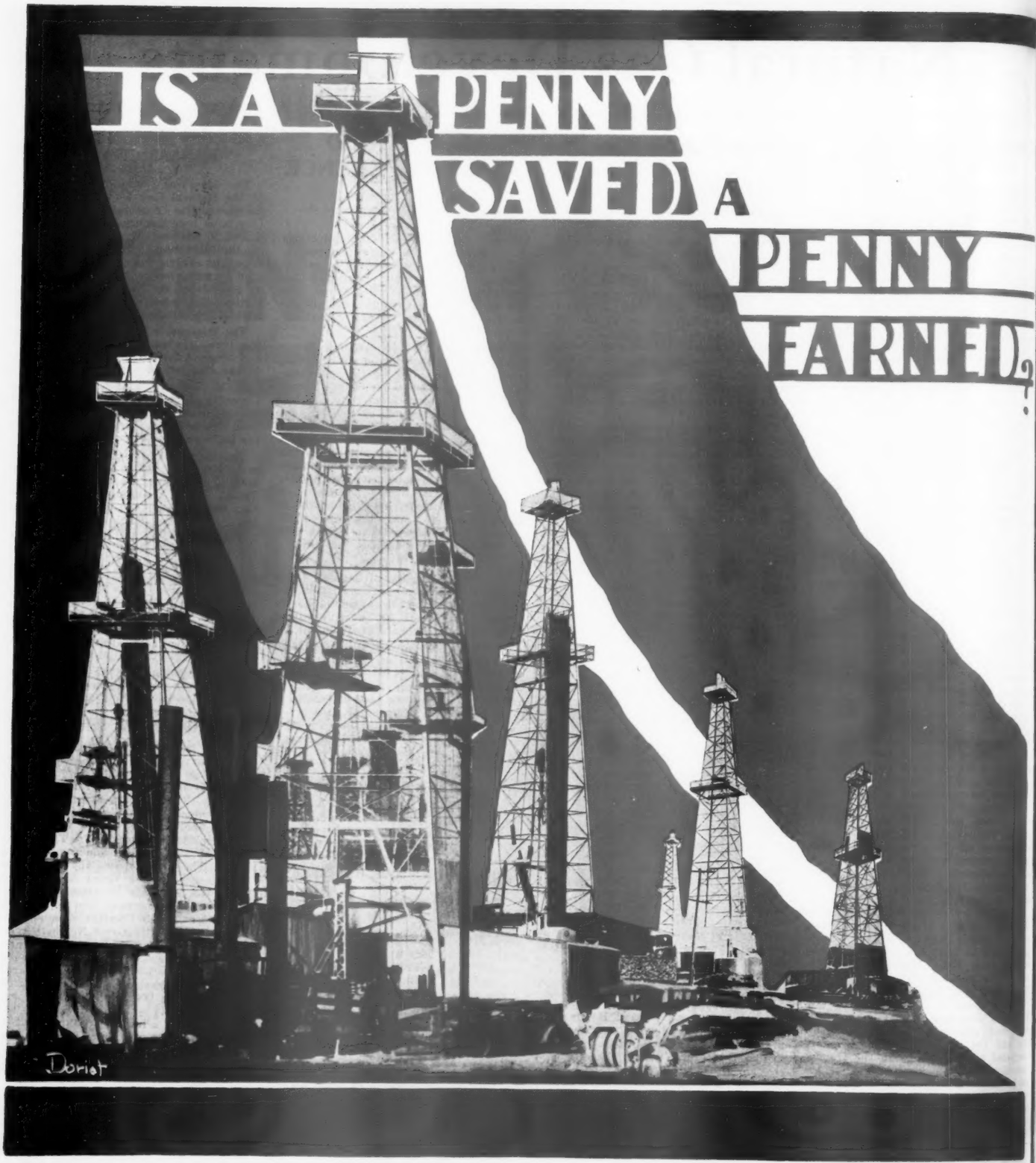
The Citizens company then appealed to the State Public Service Commission, contending that the Great Northern company was charging too low a rate and the Public Service Commission ordered the Great Northern Gas Co. to charge a rate as follows: First 10,000 feet, 35 cents; next 10,000 feet, 30 cents; next 30,000 feet, 27½ cents; next 250,000 feet, 25 cents; all over 300,000 feet, 22½ cents; minimum set for $1.50. The new rate was to be effective February 1.

GAS METER CHARGES

SHREVEPORT, La., Feb. 2.—Elimination of a meter charge for gas, electric or any other public utility service in Arkansas is one of the many items of legislation affecting the oil and gas industry in the State introduced during the current session of the legislature. It is proposed in Section 2 of House Bill 67 as follows: "It shall be also unlawful for any telephone, water, gas or electric light company to charge any fee or toll for the initial installation of any of its services, meters or telephones."

TRITEX SALE REPORTED

UVALDE, Tex., Feb. 2.—Announcement has been made here that the Moody-Seagraves interests of Galveston have purchased an interest in the Tritex Gas Utilities Co. which supplies this city with natural gas.



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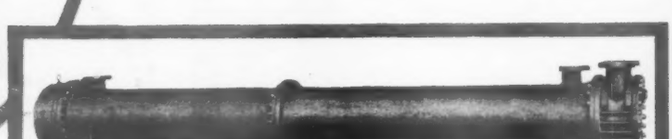

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EQUIPMENT AND SUPPLIES

INGERSOLL-RAND NOW HAS A TULSA OFFICE

The Ingersoll-Rand Co. has established a sales and service branch in Tulsa, with temporary offices at 607 McBirney Building. About April 1 sales, service, and warehouse departments will be grouped in a new building now being erected at Detroit Avenue and Brady Street. Tracy L. Clarke, recently of the general sales department of the company in New York, is the Tulsa manager.

With 14,000 square feet of floor space and a staff of 25 persons, the Tulsa office will carry compressors, Cameron pumps, pneumatic tools, rock drills, paving breakers and other products designed for oil field and general service, besides a supply of parts.

The Ingersoll-Rand Co. has made oil field compressors since 1902, when it built the first high-pressure compressors for air lift work in Texas and Kansas fields.

AMERICAN LOCOMOTIVE TAKES OVER COMPANY

Announcement has been made by Heat Transfer Products, Inc., designers and builders of an extensive line of heat transfer apparatus, that it has become affiliated with the American Locomotive Co. All manufacturing will be done in the plants of the latter company, located in several parts of the United States and in Canada. George T. Jacocks remains manager of Heat Transfer Products, Inc. The company name, as well as most of the key men, will be retained.

Utilizing the American Locomotive Co.'s huge manufacturing facilities, Heat Transfer Products, Inc., is now producing equipment for the gas, petroleum, power plant, heating and ventilating and other industries requiring any type of heat transfer apparatus. The offices of the company are at 30 Church Street, New York.

OFFICERS FOR YEAR CHOSEN

The Engineering, Research and Equipment Co., at its annual meeting of stockholders in the Dallas office of the company on January 21, elected the following board of directors: J. B. Funk, John Suter, J. E. Kobernik, P. M. Raigorodsky, L. H. La Montagne, A. J. L. Hutchinson and George A. Morrell. Officers chosen are: President, Mr. Funk; vice president and manager, Mr. Kobernik; secretary and treasurer, Mr. Raigorodsky; assistant treasurer, Mr. La Montagne; assistant secretary, Mr. Hutchinson; assistant secretary and auditor, Mr. Morrell. The company, which already had offices in Los Angeles, Calif., and Dallas, Tex., has opened an office in the Exchange National Bank Building, Tulsa, in charge of Mr. Raigorodsky, who will take care of the company's business in Oklahoma and Kansas. It was said that Mr. Funk and Mr. Morrell, of the California office, would remain in the Mid-Continent territory several weeks.

AIR FILTER MUFFLES NOISES

Protectomotor air filters, made by the Staynew Filter Corp., Rochester, N. Y., are said by the manufacturers to deliver air 99 9/10 clean to compressors, Diesel engines, blowers and tools. In addition to this they are said to muffle effectually the noises made by exhaust in air-using machines. They are reported to reduce wear on moving parts 75 to 85 per cent and to reduce carbon deposits 60 to 70 per cent. This helps to keep machines more efficient so that they will do more work and can be operated longer before overhauling is necessary. They occupy small space.

DURSTINE DISTRICT MANAGER

The Lincoln Electric Co., Cleveland, Ohio, manufacturers of "Stable-Arc" welders and "Linc-Weld" motors, announces the appointment of J. E. Durstine as district sales representative for the Southeast with headquarters in Birmingham, Ala. A promotion places H. P. Egan as district sales representative for Central Ohio with headquarters in Columbus.

SAFETY PUSH BUTTON MADE

A new safety type push button recently developed by the Lincoln Research Laboratories is now being marketed by the Lincoln Electric Co., Cleveland, Ohio, manufacturers of "Linc-Weld" motors and "Stable-Arc" welders. The design is a departure from the usual type in that it offers unusual safety features. A ball top "start" button is contained inside a large "stop" button which projects over the "start" button. Thus the large projecting "stop" button protects the "start" button from accidental contact. The "start" button can only be operated by the tip of a thumb or finger inserted inside the "stop" button.

BIT BUSINESS SOLD TO REED

The Reed Roller Bit Co. of Houston, Tex., has purchased the factory, patents, machinery and equipment of the Barrett-Robishaw Co. of Beaumont, Tex., and is moving everything to Houston. The Barrett-Robishaw Co. manufactures a soft formation combination drilling and coring bit. H. C. Howard is general manager of the Reed Roller Bit Co.

WELDING GLOVES IMPROVED

Oxweld Acetylene Co., New York, has added to its line of accessories for oxy-acetylene welding and cutting, gauntlet gloves of a soft and pliable suede leather, specially treated to prevent heat from affecting it, to supersede the horsehide gloves formerly supplied. Reinforcements make them durable.

PRUITT SENT TO WICHITA

Ray H. Pruitt, manager of the International Derrick & Equipment Co.'s branch at Tonkawa, Okla., has been transferred to Wichita, Kans., where he has been promoted to district manager. In addition to maintaining a branch in Wichita, the company has established a stock of Ideco equipment at Valley Center.

MOTOR FOR LONG-HOUR USES

The Wagner Electric Corp. of St. Louis, Mo., announces a new rubber-mounted motor, the 57RA, a development

in refrigeration motor designed, developed especially for the electric refrigeration industry. The motor proper is completely insulated from the supporting cradle-shaped base by means of rubber bushings, effecting a quiet motor suited to the needs of "long-hour" applications.

SWEETALOY CHART PREPARED

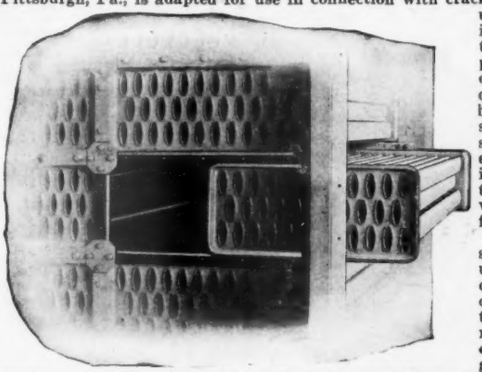
The William J. Sweet Foundry Co., Newark, N. J., is distributing a new and enlarged chart of Sweetaloy castings for corrosion and heat resistance, as an index to the various "stainless steel" alloys now on the market. The chart gives detailed information as to analyses, physical properties, corrosive media and uses recommended. It is designed to help users of alloy castings who may be confused by the many acid and heat resisting alloys being produced under various trade names.

COMPANY DISPLAYS DEVICES

The following flush type power plant instruments will be mounted on black metal panels and exhibited at the Chicago Power Show by the Brown Instrument Co., Philadelphia, Pa.: Indicating and recording pyrometers, indicating and recording flow meters, recording thermometers and pressure gauges, duplex temperature and pressure recorders, strip chart recording thermometers, indicating resistance thermometer so sensitive as to operate when the bulb is clasped in the hand, strip chart recording resistance thermometer, Brown electric carbon dioxide meters in operation, intermediate and low range manometers, forged steel manometers in various stages of construction, portable pyrometers and potentiometers, draft gauges, thermocouples, protecting tubes, automatic control valves and distant reading pressure transmitter.

AIR HEATER IS ADAPTED FOR CRACKING STILLS

The oval tube air heater manufactured by the Shaw-Perkins Manufacturing Co., Pittsburgh, Pa., is adapted for use in connection with cracking stills. Cracking stills usually operate without an induced draft fan. The oval tube air heater for such purpose may be designed to contain only a single vertical gas passage, which combined with the low draft resistance offered by the stream line oval tube heat exchanging surface, results in low draft loss, allowing the heater to be operated without an induced draft fan.



A further advantage resulting from this design for use in connection with cracking stills is that the cold end of the heater is on the top element and as corrosion occurs in air heaters on the cold end where the gases condense, it will be apparent that the cold end in this heater arrangement is localized on one complete element. Should corrosion occur and a replacement of surface become necessary, it is apparent that only the top element will be affected, making replacement easy and economical.

MATERIAL IS DESIGNED TO COMBAT CORROSION

The comparatively recent development of oil fields in West Texas and other places where high sulphur content causes a destructive quality of hydrogen sulphide gas created a new problem for the oil industry. This gas combines directly with the steel or iron with which it comes into contact, forming sulphide of iron. In many cases this formation has been so rapid that a three-sixteenths-inch tank roof has been destroyed in 6 to 12 months. During the formation of sulphide of iron by this process intense heat developed has resulted in tank explosions.

Four years ago the chemical industry evolved some new synthetic gums which lent themselves to the solution of this problem. These gums were transformed into a varnish, insoluble in any hydrocarbons or their condensations and by the addition of inert pigments and other suitable materials paints were produced under the name of "Rubshell."

Laboratory trials indicated they possessed promising qualities. In actual tests the various destructive agents as hydrogen sulphide gas, diluted or concentrated acids, acid condensations, salt water and heat, to which the material had to be adapted resulted in five different forms of "Rubshell" paint being made.

Rubshell No. 5, is said to possess great resistance against the destructive influence of hydrogen sulphide gas. This and the four other Rubshell products are made by the International Compositions Co., New York.

DEVICE FOR REDUCING HOLE TO BE OFFERED

A device for reducing hole in drilling an oil well without setting casing and without ruining a possible casing shoulder has been invented by J. R. Allen, head of the Allen Engineering Co., and will be placed on the market. The new tool, the Allen reducing sleeve, will be manufactured by the Campbell, Wyant & Cannon Foundry Co., of Muskegon Heights, Mich.

In cases where there are several possibilities of getting production, the new tool makes certain that when the hole is reduced the smaller bit will start down in the center of the larger hole and not on one side. This and another feature of the reducing sleeve will protect the casing seat above each possible pay until it has been determined whether the well is to be completed at that depth.

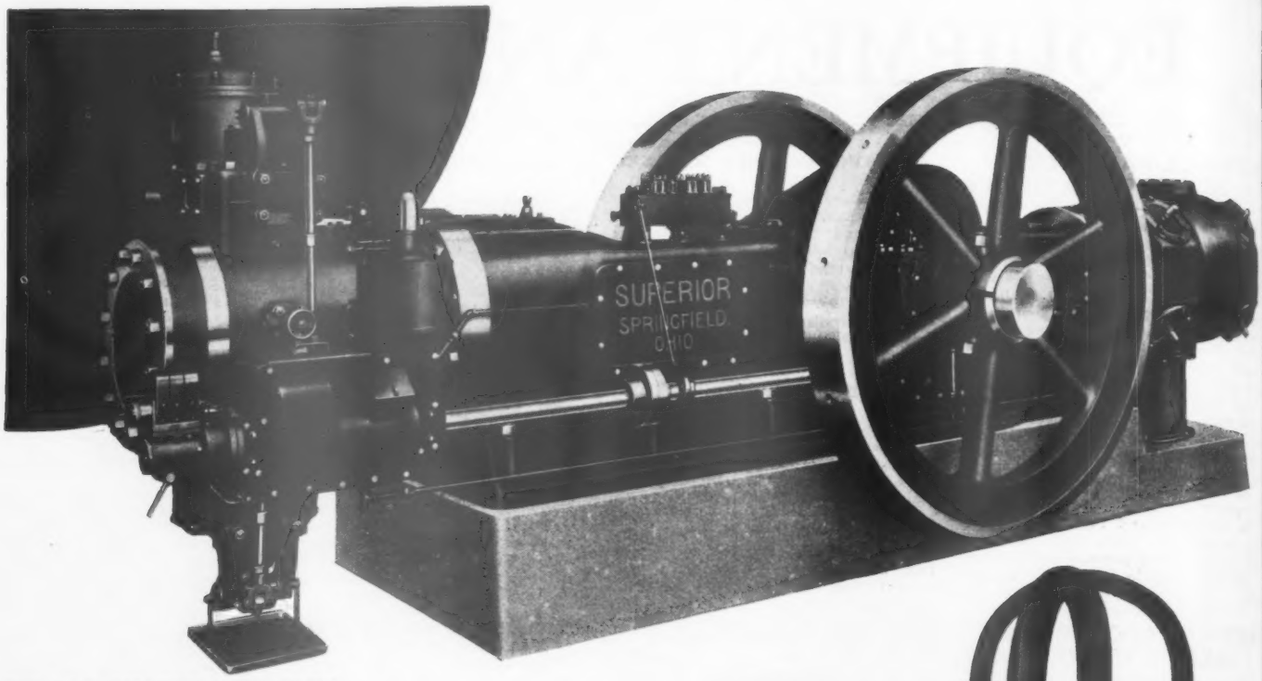
If no success is met the reducing sleeve can be removed from the hole, the well reamed down with the larger bit and carried on to a point above the next possible pay where the same operation as before can be used with the reducing sleeve.

HERCULES MOTORS OFFICIALS

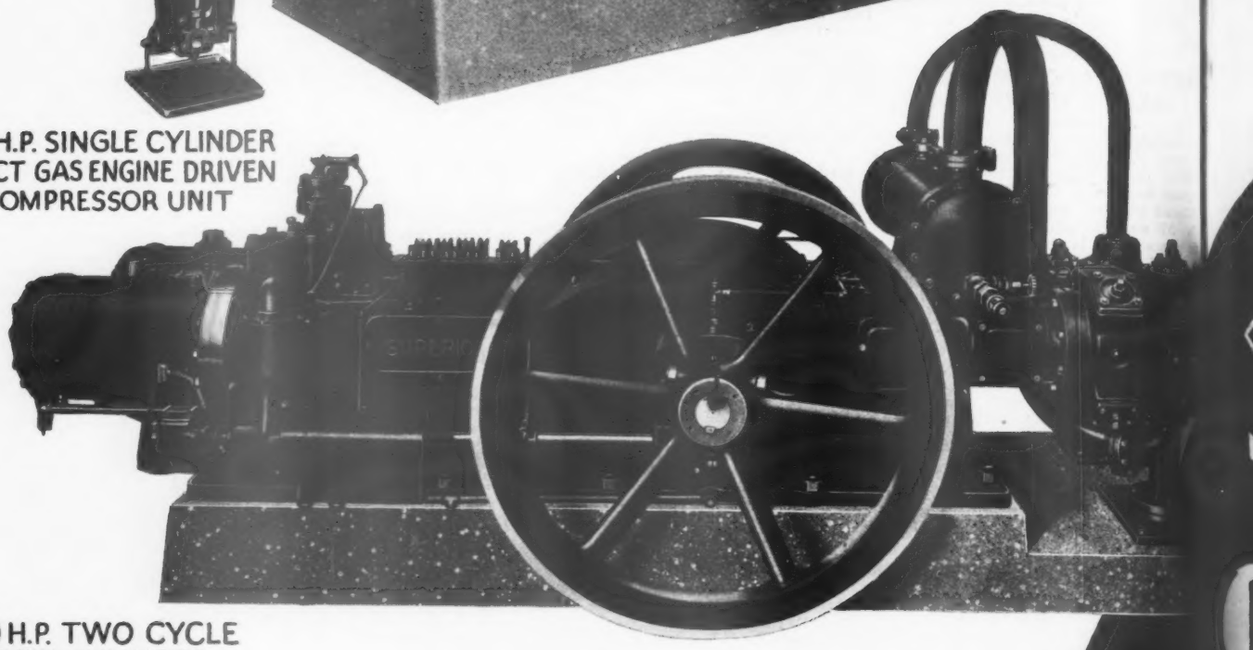
Directors and officials of the Hercules Motors Corp., Canton, Ohio, were re-elected recently as follows: H. H. Timken, chairman of the board; E. A. Langenbach, president; Charles Balough, vice president and general manager; H. P. Blake, secretary; H. H. Timken, E. A. Langenbach, R. W. Gallagher, Gordon Mather, Charles Balough, directors.

KERBEY IS CHICAGO MANAGER

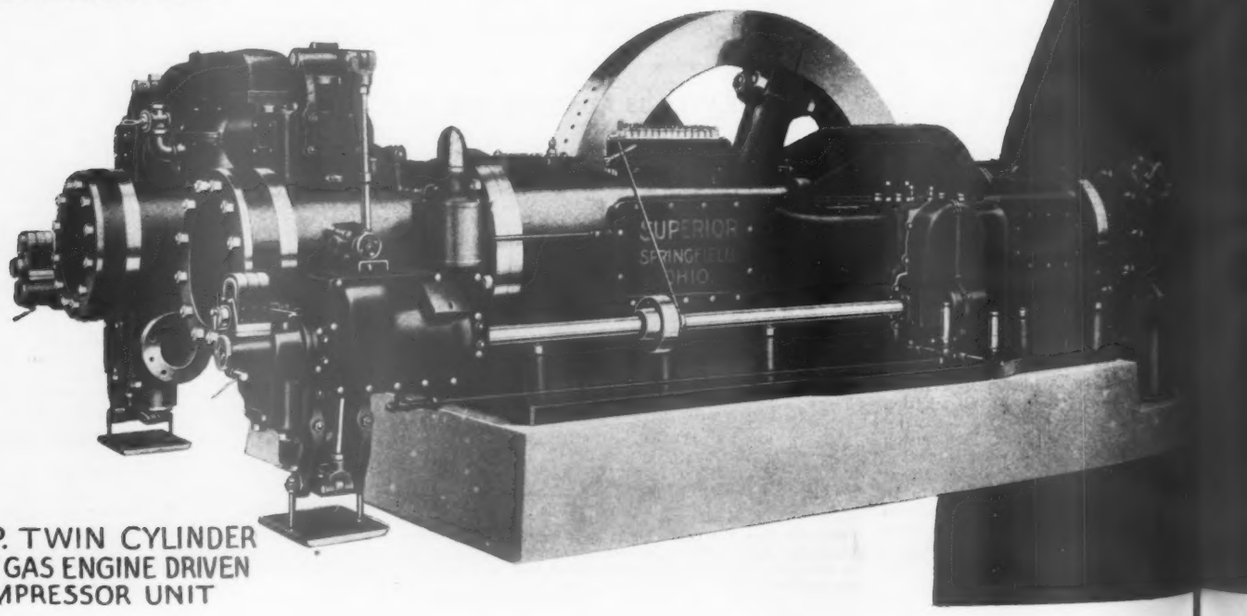
The Midwest Piping & Supply Co., Inc., of St. Louis, fabricator and erector of power plant, industrial and oil refinery piping, has appointed E. A. Kerbey as Chicago manager with offices at 208 South LaSalle Street. Mr. Kerbey is a graduate mechanical engineer.



90 H.P. SINGLE CYLINDER
DIRECT GAS ENGINE DRIVEN
COMPRESSOR UNIT



90 H.P. TWO CYCLE
TWIN CYLINDER
COMPRESSOR UNIT



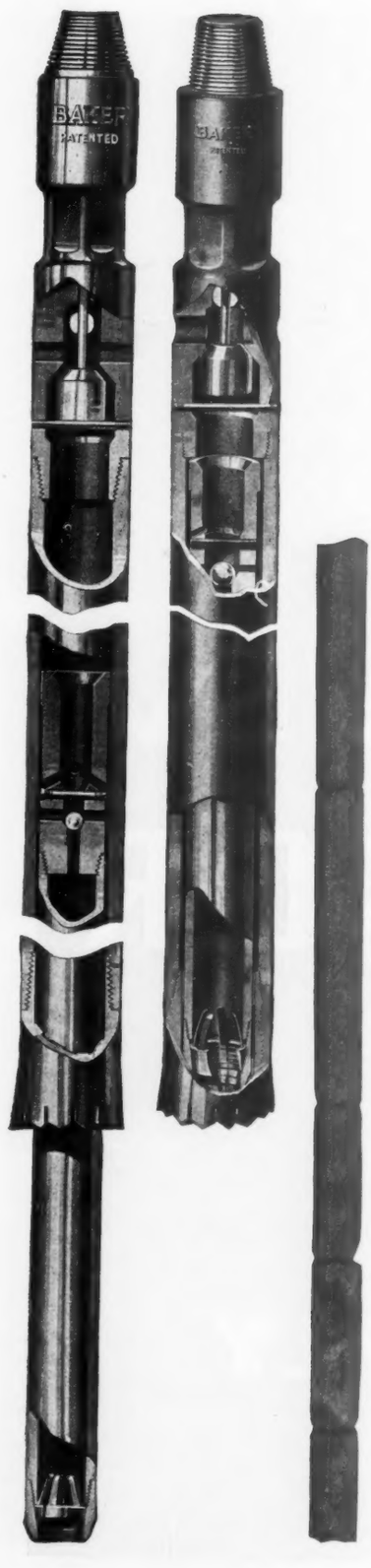
185 H.P. TWIN CYLINDER
DIRECT GAS ENGINE DRIVEN
COMPRESSOR UNIT

SUPERIOR
COMPRESSOR
UNITS
THE
NATIONAL SUPPLY
COMPANIES

You Pay the Cost

of the Baker Cable Tool Core Barrel—

Why Not Get the Benefit?



The cost of not knowing exactly the right place to set the casing always costs more than it does to core and get the benefit of the knowledge that the Baker Cable Tool Core Barrel can give.

The well that you are now drilling may be only a short distance from one that is producing and yet the strata you want to set in may be five to ten feet lower or higher. And five or ten feet may mean the loss of thousands of barrels of oil when the well goes on production. It costs more money to guess than it does to core.

Good Cores From Any Kind of Formation

The Baker Cable Tool Core Barrel has made coring with cable tools both practical and economical. Any experienced cable tool driller can make hole and bring up good cores that will give real knowledge of the formation.

The success of the Baker Cable Tool Core Barrel has been proven in oil fields all over the world. The kind of formation doesn't make any difference. It brings up good cores regardless.

On the left is shown the core barrel with the inner core barrel on the formation ready for the down stroke. The next picture shows it at the end of drilling stroke. Next is a picture of a core taken with a 4½" Baker Cable Tool Core Barrel.

BAKER
OIL TOOLS, INC.
Formerly Baker Casing Shoe Company
P. O. Box L, Huntington Park, Calif.

California Branches:
Coalinga Ventura Taft Bakersfield

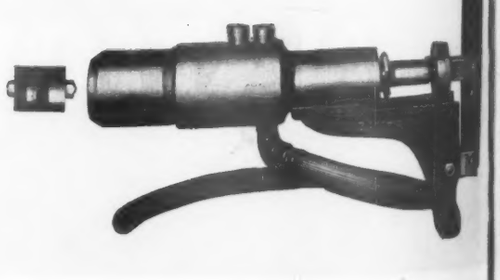
Mid-Continent Branches:
Tulsa, Oklahoma
Houston, Texas

Export Sales Office:
25 Broadway, New York City

Mid-Continent Distributors:
B & A Specialty Co.,
220 E. Brady St., Tulsa, Okla.
2301 Commerce St., Houston, Texas

Baker Hydraulic Core Extractor—removes the tightest core from the core barrel without damage.

Baker Core Barrel Tongs are essential for properly setting up the Core Barrel—comparatively inexpensive.



WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

HUGHES COUNTY

E. W. Whitney and others' No. 1 Moore, SE cor. SW Sec. 17-5-9 ..... Underreaming 3,345 ft.
Pure Oil Co.'s No. 1 Fixico, NE cor. SW Sec. 18-8-9 ..... Dry and abandoned 4,500 ft.
Howard Petroleum Co.'s No. 1 Gilbert, NW cor. SE Sec. 25-8-10 ..... Drlg. 4,625 ft.
Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW Sec. 21-6-8 ..... Sand 3,310-30 ft.; corrected, hole full water.
T. B. Slick, Inc.'s No. 1 Epperly, NW cor. NE NW Sec. 22-8-8 ..... Dry in Wilcox 4,655 ft.; plugging back.

CANADIAN COUNTY

Wirt Franklin Pet. Co.'s No. 1 North, NW cor. NW Sec. 18-13-10w ..... Drlg. 3,464 ft.

OKLAHOMA COUNTY

Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w .. Drlg. 4,875 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Drlg. 7,130 ft.
Indian Terr. Ill. Oil Co.'s No. 1 fee, C SE SE Sec. 24-11-3w ..... Flowing 5,697 bbls. daily from 6,498 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE, Sec. 10-11-3w ..... Drlg. 2,929 ft.

OKFUSKEE COUNTY

Moore & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.
T. B. Slick, Inc.'s No. 1 Barry, SE cor. NE SE Sec. 11-11-7 ..... Drlg. 4,000 ft.
Erwin and others' No. 1 Patterson, NW cor. SE Sec. 15-12-9 ..... Location.
Erwin et als' No. 1 Patterson, NW cor. SE Sec. 15-13-9 .. Location.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Rig.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-12-20 ..... Shut down.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Drlg. 975 ft.
Buffington et al's No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Drlg. 2,220 ft.

PAWNEE COUNTY

Washoma Oil Co. and others' No. 1 Buffalo, SE cor. NE Sec. 33-22-5 ..... S.D. 3,200 ft.

POTTAWATOMIE COUNTY

Phillips-Atlantic's No. 1 Winrow, SW cor. NE NE Sec. 11-8-4 ..... Dry and abandoned 4,672 ft.
Shell Pet. Corp.'s No. 1 Livingston, SW cor. SE Sec. 33-7-5 ..... Swb. 35 bbls. oil and some wtr. 4,573 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Standardizing 4,926 ft.
Shell Pet. Corp.'s No. 1 Lowe, SW cor. NW NE Sec. 17-6-6 ..... Cleaning out 4,920 ft.
Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE Sec. 18-8-5 .. Hunton 4,124-40 ft.; flowing 1,600 bbls.
T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3 .. Drlg. 4,193 ft.
T. B. Slick and Shell Pet. Corp.'s No. 1 Hurst, SE cor. NW NW Sec. 17-7-2 ..... Fishing 6,098 ft.
Shell Pet. Corp.'s No. 1 Wyatt, SW cor. NW NE Sec. 17-6-5 ..... Dry and abandoned 4,414 ft.
Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3 ..... Rig.
Rush & Vaughan's No. 1 Laster, SE cor. NE NE Sec. 19-6-4 ..... Rig.

CADDO COUNTY

J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w ... Shut down 150 ft.
Wirt Franklin's No. 1 North, NW cor. NW Sec. 18-10-13w. Drlg. 1,775 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 19-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 22-6-10w ..... Rigged up and shut down.
Red Bank Oil Co.'s No. 1 Shanklin, C NW Sec. 15-12-11w. Dry and abandoned 4,603 ft.

STEPHENS COUNTY

Stahl & Burris' No. 1 Jefferson, SE cor. NE NW Sec. 1-1-7w ..... Shut down 2,624 ft.
Prince Bros.' No. 1 Hidgecoxie, NW cor. NE Sec. 29-1-5w ..... Rigging rotary.

SEMINOLE COUNTY

Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 21-10-7 .. Drlg. 3,737 ft.
Superior and Fuhrman's No. 1 Fay, NW cor. SE SW Sec. 27-11-6 ..... Dry and abd. 4,773 ft.
Magnolia Pet. Co.'s No. 1 Germany, SE cor. NW Sec. 10-8-5 ..... Plugging back to Hunton lime.
Phillips Pet. Co.'s No. 1 Miller, NW cor. SW Sec. 34-11-7 ..... Drlg. 3,660 ft.
Burke-Greis Oil Co.'s No. 1 Cyrus, SE cor. NE NW Sec. 13-9-7 ..... Fishing 3,420 ft.
Harris and others' No. 1 Stidham, SE cor. NW Sec. 20-9-8 ..... Dry and abandoned 4,532 ft.
C. B. Shaffer's No. 1 Carolina, SE cor. SW NE Sec. 4-6-7. Drlg. 4,725 ft.
R. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Plugged back 4,325 ft. and shut down.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... Drlg. 3,805 ft.
Shaffer Oil & Ref. Co.'s No. 1 Catchochee, SW cor. SW NE Sec. 18-10-7 ..... Dry and abandoned 3,782 ft.
T. W. Adkins' No. 1 Reed, NE cor. NW Sec. 2-8-8 ..... Drlg. 4,255 ft.
T. B. Slick, Inc.'s No. 1 Tiger, NW cor. SW SE Sec. 13-8-5 ..... Dry and abandoned.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... U.R. 1,940 ft.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW, Sec. 11-6-5 ..... Location.
Empire Gas & Fuel Co.'s No. 1 Harjo, SW cor. NW SE Sec. 17-7-6 ..... Hole full water, Wilcox 4,593-4,600 ft.
Mariand Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 6-10-7 ..... Drlg. 3,782 ft.
Magnolia Pet. Co.'s No. 1 Carroll, SW cor. NW SE Sec. 1-7-5 ..... Drlg. 4,835 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7.. Location.
T. B. Slick and others' No. 1 Davis, NE cor. NE Sec. 30-6-4 ..... Drlg. 2,340 ft.

TILLMAN COUNTY

Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Drlg. 600 ft.

MAJOR COUNTY

Ramlan & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235 ft.; shut down.
Hart and others' No. 1 Turner, C NE NE Sec. 23-20-14w.. Rig.
Wilson et al's No. 1 Unknown, NE cor. NE Sec. 4-23-16w. Cellar.

WOODS COUNTY

R. K. Miller's No. 1 Copenhavera, NW cor. NW Sec. 13-24-13w ..... Moving in tools.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Rig.
Sinclair Oil & Gas Co.'s No. 1 Thompson, C SW SW Sec. 33-27-16w ..... Drlg. 2,375 ft.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. NW Sec. 17-1-2.... Shut down for casing 1,900 ft.
Ramsey Bros.' No. 1-A Malock, C SW NE Sec. 32-1-3.. Drlg. 360 ft.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 6-15-15w ..... Shut down 4,355 ft.
Don Sifers' No. 1 Jordan, SW cor. NW Sec. 16-16-17w. Spudded and shut down.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 22-9-22w ..... Shut down 3,460 ft.
Martin and others' No. 1 Cluck, NW cor. SE Sec. 1-8-25w. Drlg. 2,707 ft.
L. C. Hivicks' No. 1 Davis, C NW NE Sec. 4-11-26w..... Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Shut down 2,402 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 30-8-23w ..... U.R. 885 ft.

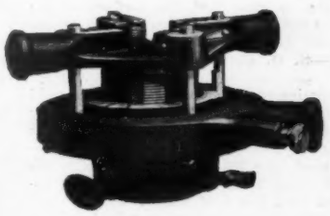
(Continued on Page 86)

A Genuine "TOLEDO" No. 1A IS ADJUSTABLE FOR ANY DEPTH THREAD REQUIRED

When fittings are a trifle offsize, or you desire to vary the depth of the thread to be cut, you can easily do so with a "TOLEDO" No. 1A 1-inch to 2-inch ratchet threading device.

The adjustment is positive, and a smooth, perfectly tapered thread always results.

Genuine "TOLEDO" No. 1A ratchet threading tools for 1-inch to 2-inch pipe have no equal for long, exacting and satisfactory service. Experienced operators insist on them, and will accept no substitute.



GENUINE "TOLEDOS" THREAD UP TO 12"—

—easily, quickly and produce smooth, perfectly tapered threads on all sizes. "TOLEDO" pipe cutters are also made for cutting all sizes of pipe up to 12 inch. Rapid, accurate, square-end cutters that leave no burr.

A copy of the complete "TOLEDO" catalog will be sent to you on request.

INSIST ON THE GENUINE.

TRADE-MARK

THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

NEW YORK OFFICE, 72 LAFAYETTE STREET

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

"BOTTLING" PRACTICE

What strength of hydrofluoric acid should be used in bottling a well? What size of bottle is generally used and how long should the bottle remain in one position for the acid to etch a line marking the position that the surface of the acid occupied in the bottle? In what sort of container should the bottle be run?—S. O. C.

Practice varies in this work. The acid is put up in paraffin bottles carefully packed in cartons and usually is sold in about a 52 per cent solution. Before being used, the 52 per cent is usually diluted using 1 part of the 52 per cent solution to 2 parts of water.

Extreme care must be exercised in handling this acid as it will inflict severe wounds if it comes in contact with the hands, face or other parts of the body. It is highly advisable for the operator handling the acid in the field to wear rubber gloves and to have a bucket of strong soda solution with which to neutralize the acid in case of accident. Both the concentrated acid and diluted acid should be kept in paraffin bottles until they are used.

It is customary to use round glass bottles of approximately 4-ounce capacity for the etching tests in a well. Some use long slender sample bottles, others use plain round drug bottles, and others even use bottles with ground glass stoppers. Broad rather than slender bottles are better for measuring the angles. The bottle is generally charged with the diluted acid to about one-third to one-half full and is then immediately placed in the bottle container and run into the well.

A convenient form of bottle container is made of standard pipe connections as follows: A 3-inch nipple, 14 inches long, is threaded on the inside for plugs at both ends. A plug is screwed tightly into one end, using some good thread dope to make it water tight. A 1½-inch nipple, 12 inches long, is set up with standard 2½-inch to 1½-inch reducers at both ends. A plug is screwed tightly into one of the reducers, using plenty of good pipe dope. This 1½-inch nipple is partly filled with cotton waste, cloth or other material tightly packed and if necessary a sleeve may be used so that the acid bottle will fit snugly inside the smaller nipple and parallel with it.

The 1½-inch nipple with the reducers bulging out at the ends will fit snugly into the 3-inch nipple or is made to do so. After placing the bottle of acid inside the 1½-inch nipple, a plug is screwed tightly into the reducer at its open end, care being taken to keep the stopper of the bottle pointing vertically upward. The 1½-inch nipple is then placed inside the 3-inch nipple and that is also plugged tightly. The container then is placed in a 5½-inch sand pump or boiler and run into the well, care being taken throughout all this work to have all containers snugly parallel with each other. The use of two steel nipples, one inside the other, insures a watertight job notwithstanding the great pressures in deep wells.

After the bottle reaches the objective point in the well it is held at rest for 10 or 15 minutes or longer, depending upon the concentration of the acid, and then withdrawn, emptied, and washed as quickly as possible. The bottle is then examined and the angle indicated by the etched line marking the position at which the acid stood can be measured.

WANTS OIL LITERATURE

I am very much interested in the following papers and shall appreciate it very much if you can advise me where to secure copies.

The plugging of oil sands by calcium carbonate as described by Wells and Mills in United States Geological Survey Bulletin 1919, and again by Mills in volume 45 of the Transactions of the American Institute of Mining and Metallurgical Engineers, 1921.

Second, the cleaning of a well with hydrochloric acid as described in United States Bureau of Mines reports of Investigations, Serial No. 2,550.

I have written the Bureau of Mines some time ago, but have not had any information.—W. A. K.

The Geological Survey publication which describes the plugging of oil sands by calcium carbonate is Bulletin No. 639, "The Evaporation and Concentration of Waters Associated with Petroleum and Natural Gas," by R. Van A. Mills and Roger C. Wells, 1919. You should write to the Director of the United States Geological Survey for a copy of this bulletin.

The discussion of cleaning calcium carbonate from oil wells by running in hydrochloric acid which Mr. Mills presented before the American Institute of Mining Engineers in 1921 was published along with the other discussions in pamphlet form by the Institute. You may be able to obtain a copy of these discussions by applying to Dr. H. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers, 29 West Thirty-ninth Street, New York. If you can not secure a copy of the pamphlet from the Institute this department will try to obtain a copy and send it to you.

Bureau of Mines reports of investigations, Serial No. 2,550; "The Paraffin Problem in Oil Wells," by R. Van A. Mills, 1923, can be obtained by addressing a request for it to the Director, United tates Bureau of Mines, Washington, D. C.

It is not the practice of the Bureau of Mines to ignore communications, and it is believed probable your failure to receive a reply is the result of some office error.

VOLUMETRIC EFFICIENCY

Will you tell me, please, how the volumetric efficiency of a plunger pump is calculated? Another thing I would like to know is this: Pump constants, as they are called, are employed in figuring out the amount of oil which a working barrel will pump in a given time. Will you tell me what these pump constants are? —D. C. S.

This department can do no better than to quote from Bulletin No. 1 of the D & B Pump & Supply Co., as follows:

"To determine the theoretical production which a working barrel would pump per day of 24 hours, the following factor are used: Area of plunger in square inches; length of stroke in inches; number of strokes per minute; minutes per day. The product of these factors would give the production in cubic inches. To reduce this to barrels we divide by 231 (cubic inches in a gallon) and 42 (gallons per barrel).

In order to simplify this process the following constants can be used which are developed by taking into consideration the unchanging quantities which are area of each pump, number of minutes per day, cubic inches per gallon and gallons per barrel.

These constants are:

2 -inch Pump (1¾" I. D.)	.357
2½-inch Pump (2¼" I. D.)	.590
3 -inch Pump (2¾" I. D.)	.881
4 -inch Pump (3¾" I. D.)	1.639

"The factors which are subject to change are the length of the stroke, which should be determined in inches, and the number of strokes per minute."

After these data have been obtained the bulletin states the following formula may be used:

Constant × (Length of stroke in inches) × (No. of strokes per minute) = Theoretical production in barrels.

From these data the volumetric efficiency of a pump may be computed by dividing the actual production by the theoretical production.

The foregoing calculations may not be so simple as they seem because in deep wells it is difficult to tell the length of the plunger stroke. There is evidence that the length of the plunger stroke in deep wells is not the same as the length of stroke of the polished rod. Engineers of many companies are working on the problem of sucker rod stresses and strains, which includes the study of the relative lengths of stroke of the polished rod and the plunger. Adequate studies of the volumetric efficiencies of the plunger type of oil well pump must take these factors into account.

QUESTION NOT CLEAR

How can I get full information of drilling operations in shallow fields up to 1,600 feet, preferably in Texas, Kentucky or New Mexico? My object is to find biggest operations at this depth.—R. H. A.

It is not wholly clear what information you seek. If you want to know what drilling practices are followed in shallow oil fields you would do well to read "Deep Well Drilling" by Walter H. Jeffery. If you want to know what drilling operations are going on in shallow fields of the states you name you can do no better than consult the files of The Oil and Gas Journal. Back numbers are kept in public libraries, where you will have access to them if you do not happen to have them yourself. For current drilling operations see the field reports of this publication's staff correspondents from week to week.

BOOKS ON OIL SUBJECTS

Can you tell me what books are considered the best and latest authorities on geology or geophysical methods of oil finding? Where can these books be obtained and what are their prices?

Where can I learn of geophysical methods, services and results from someone who has employed these methods in the field?

I will appreciate this information and possibly some day I can reciprocate.—R. H. B.

There are many books and papers treating with varying degrees of comprehensiveness the subjects in which you say you are interested. A few good ones are named here.

Cobb's translation of Ambronn, "Elements of Geophysics" (McGraw-Hill Book Co., New York, 1928, $5) is a general treatise on the applied geophysical methods rather than on the application to the finding of oil.

The Geophysical volume of the American Institute of Mining and Metallurgical Engineers, to be issued in February, will contain two papers whose main emphasis is on the use of the torsion balance and seismic methods in oil geology. One is on "The Torsion Balance Method of Geologic Prospecting" (previously issued as A.I.M.E. Technical Publication No. 50, 1928) and the other is on "The Seismic Method of Geologic Prospecting." Both these papers are by Donald C. Barton. The Geophysical volume of the institute probably will contain one or more papers on the use of electrical methods in structural prospecting. The title and price of the volume have not been announced yet. Information can be obtained by addressing the American Institute of Mining and Metallurgical Engineers, Inc., 29 West Thirty-ninth Street, New York.

Among numerous good books on geological methods of prospecting for oil might be mentioned "The Geology of Petroleum and Natural Gas" by Dr. Ernest Raymond Lilley (D. Van Nostrand Co., Inc., New York, $6) and "Field Methods in Petroleum Geology" by Cox, Drake and Muilenberg (McGraw-Hill Book Co., New York, $4).

Below are given the names and addresses of a few individuals and companies that have employed geophysical methods in the field. No assurance can be given that all or any of them will have time to write you concerning their work, especially in the case of oil company officials. If you do communicate with any one of them, your purpose in doing it should be made clear. Obviously the attention your communication receives will depend upon that, for you will be dealing with busy men.

Prof. John H. Wilson, Department of Geophysics, Colorado School of Mines, Golden, Colo.; Dr. J. C. Karcher, Geophysical Research Corp., 65 Broadway, New York; Donald C. Barton, consulting geologist and geophysicist, Petroleum Building, Houston, Tex.; Swedish-American Prospecting Corp., 26 Beaver Street, New York; Schlumberger Electrical Prospecting Methods, 25 Broadway, New York; Prof. L. Mintrop, of Seismos and of the North American Exploration Co., care of North American Exploration Co., First National Bank Building, Houston, Tex., or Gellertstrasse 25a, Hanover, Germany; Torsion Balance Exploration Co., Post-Dispatch Building, Houston, Tex.; E. L. DeGolyer, president Amerada Petroleum Corp., 65 Broadway, New York; Wallace E. Pratt, Humble Oil & Refining Co., Humble Building, Houston, Tex., Paul Weaver, Gulf Production Co., Mason Building, Houston, Tex.; Henry Schneider, Dixie Oil Co., Slattery Building, Shreveport, La.; Ben Belt, Gulf Production Co., San Angelo, Tex.

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SPECIALLY built and designed to meet the most exacting requirements, Parkersburg Flow Tanks have demonstrated their strength and ability to withstand the excessive vibrations present in handling extremely large volumes of gas and oil under heavy pressure.

For the release of excess vapors, equipment is furnished in accordance with the operator's special requirements.

A most satisfactory solution to the vent problem is found in the Parkersburg Flow Tank Stack, through the use of pressure valves of the "butterfly" type.

The stack is 18 inches in diameter, 7 feet long, and is completely equipped with guy wire and lugs for connection to tank deck.

For complete and detailed information on Parkersburg Flow Tanks, Bolted Steel Tanks, and Vapor Tight Equipment, send for Section "S," Catalog 26.

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Crane Flanges, etc.

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ARMCO MONEL

McCord Radiator & Mfg. Co.
DETROIT

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 83)

Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ..... Shut down 1,500 ft.
Day Oil Co.'s No. 1 Ault, NW cor. NW Sec. 33-8-21w .... Drlg. 1,550 ft.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ..... Shut down 720 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w .... Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-8-8w ..... Rig.
J. B. Nichols' No. 1 Brake, SE cor. NE SE Sec. 7-5-7w .. Shut down 2,307 ft.

McINTOSH COUNTY

Marione and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 2,387 ft.; corrected.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 5,451 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ..... Rig on ground.
Wolfe et als' No. 1 Unknown, NW cor. SE Sec. 15-12-18 .. Rig on ground.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w ..... Shut do\ 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w ..... Drlg. 4,185 ft.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w ..... Shut down 530 ft.
C. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w .. Drlg. 900 ft.
Johnson & McDowell's No. 1 Thompson, SW cor. NE Sec. 6-6-15w ..... Dry and abd. 2,707 ft.
Adams et al's No. 1 Fanning, NW cor. SW Sec. 2-6-17w .. Abd. 630 ft.
Dave Malernee's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w ..... Shut down 858 ft. in granite.
A. C. Varner and others' No. 1 Bonam, CSL NW NW Sec. 5-6-18w ..... Shut down 1,127 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w ..... Rig and tools.

PONTOTOC COUNTY

Moore & Curran's No. 1 Allen, SE cor. SW SW Sec. 23-5-5 ..... Shut down 1,460 ft.
Denver P. & R. Co.'s No. 1 Roberts, SE cor. NE NE Sec. 36-5-4 ..... Drlg. 450 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w. Shut down 4,055 ft.
Wirt Franklin Pet. Co.'s No. 2 Holler, NW cor. NW Sec. 2-4-11w ..... Drlg. 3,023 ft.
Wirt Franklin Pet. Co.'s No. 2 Holler, NW cor. NW Sec. 2-4-11w ..... Drlg. 3,230 ft.
Wright et als' No. 1 Cross, NW cor. SW SW Sec. 4-1-9w .. Rig.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11 ..... Drlg. 6,020 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9 ..... Shut down 3,270 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8 ..... Rig.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12 ..... Spudded.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ..... Shut down 1,425 ft.
McNull & Gross' No. 1 Smith, CEL SE NW NE Sec. 11-6s-9e ..... Shut down 375 ft.

MURRAY COUNTY

Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down.

COTTON COUNTY

Cuyler & Pyson's No. 1 Thomas, SE cor. SE SW Sec. 16-4-12w ..... Shut down 2,127 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w ..... Location.
Pierce & Brown's No. 1 Hertzler, NW cor. NW Sec. 31-2-12w ..... Drlg. 1,575 ft.

JEFFERSON COUNTY

Bridwell et al's No. 1 Trout, CEL NE Sec. 33-6s-6w ..... Drlg. 2,151 ft.
Amerada Pet. Corp.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w ..... Shut down 4,516 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ..... Shut down 1,346 ft.

TILLMAN COUNTY

Bray and others' No. 1 Barker, NE cor. SW NW Sec. 9-1-15w ..... Shut down 805 ft.
Dixie Oil Co.'s No. 1 McKinney, NE cor. NE Sec. 29-3s-18w ..... Drlg. 2,580 ft.
Stanley & McGregor's No. 1 Mock, NW cor. NW SW Sec. 33-1-20w ..... Dry and abandoned 2,446 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.

JOHNSON COUNTY

Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 ..... Shut down 1,530 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.
Smith & Kinsley's No. 1 Lane, SE cor. NW Sec. 29-1-7 .. Drlg. 1,422 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Drlg. 895 ft.
Sullivan and others' No. 1 Wines, NW NE NW Sec. 11-7s-5e ..... Shut down 475 ft.
E. J. Stump and others' No. 1 McGinnis, SW Sec. 26-3s-8w ..... Rig and tools.
McCrow and others' No. 1 Trust, SW Sec. 12-1s-8e ..... Shut down 1,625 ft.

CARTER COUNTY

Devonian Oil Co.'s No. 1 Myer, NW cor. SE Sec. 19-5s-3w. Drlg. 2,325 ft.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Drlg. 350 ft.
Schermerhorn Oil Co.'s No. 2 Jolliff, NE NW Sec. 24-5s-1e ..... Drlg. 2,647 ft.
Humble Oil & Ref. Co.'s No. 1 Hitchcock, SE NE Sec. 12-4s-3e ..... Drlg. 1,165 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

EDWARDS COUNTY

Amerada & Wilcox's No. 1 Teansil, C NW SW Sec. 32-25-19w ..... Drlg. 4,160 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w ..... Drlg. 750 ft.

GEARY COUNTY

Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5 .. Shut down 1,200 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w ..... Shut down 2,450 ft.

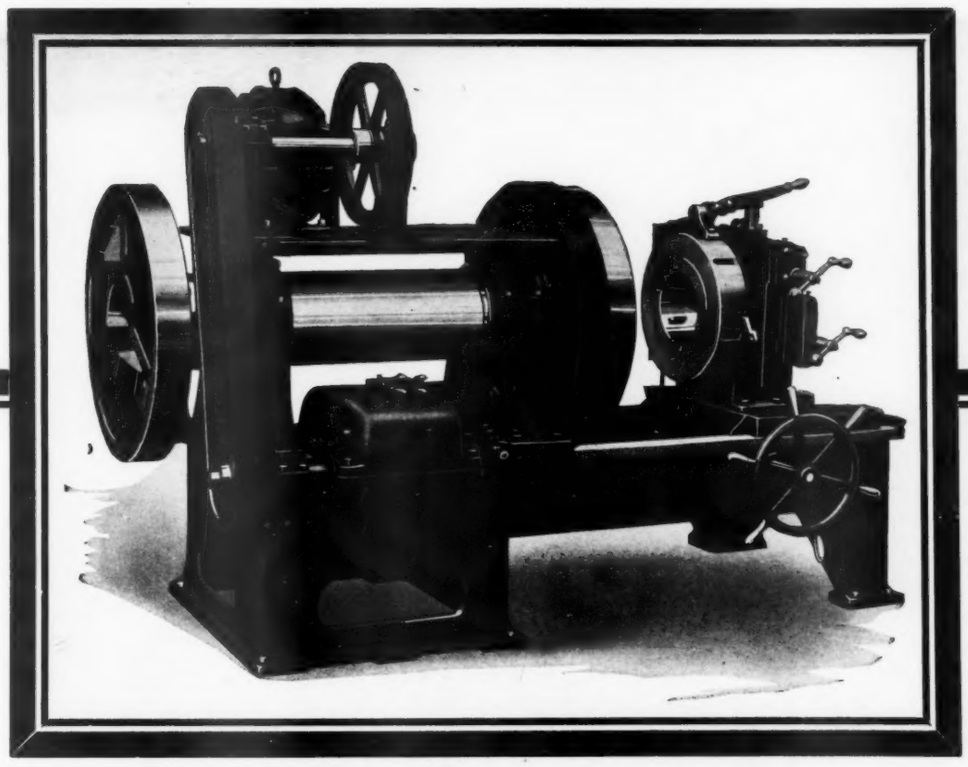
HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w ..... Cleaning out 5,353 ft.

HARVEY COUNTY

R. S. Austin's No. 1 Nieman, SW cor. SW Sec. 21-24-2 ... S.D. 2,975 ft.
R. F. Garland's No. 1 Cox, NE cor. NE Sec. 27-24-1w ... Casing 2,204 ft.
Empire G. & F. Co.'s No. 1 Tangeman, SW cor. NE NE Sec. 19-22-1e ..... Spudded.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Drlg. 295 ft.
Hartman & Skaer's No. 1 Seamen, NW cor. NE SE Sec. 26-24-1e ..... Rig.
Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-23-1e ..... Drlg. 475 ft.
Fisher & Louck et als' No. 1 Reiger, NW cor. NE Sec. 17-23-2 ..... Drlg. 1,300 ft.

(Continued on Page 90)



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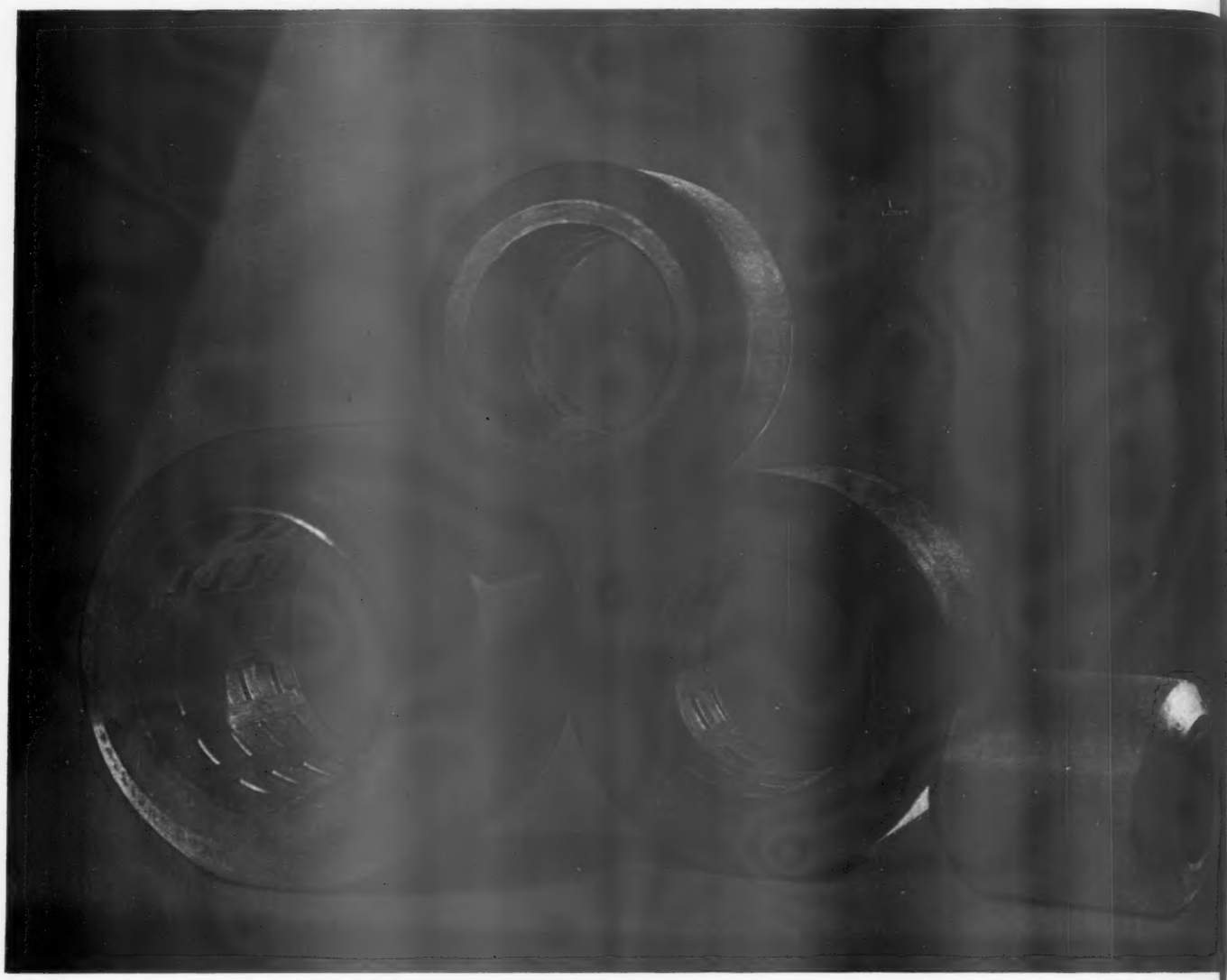

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In the 71 wells drilled below 7,000 feet, 69 were Bettis-equipped.

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The fastest drilled well in California.

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During the past year practically every deep well has been equipped with Bettis Protectors and there has never been an hour's delay in the delivery of our Product from the factory, or from any of our branches.

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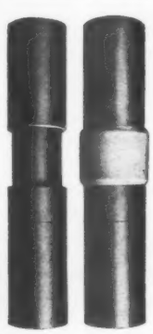

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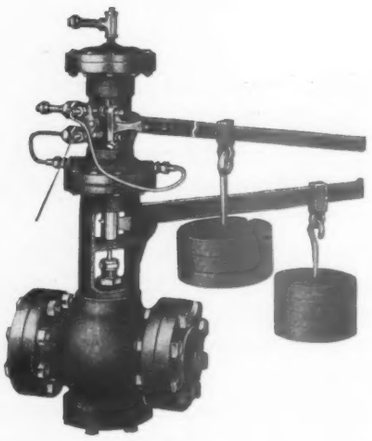

IF YOU wish to hold back any pressure between 300 and 800 lbs.,—and have a *continuous* discharge

(a) into a distributing system having close to atmospheric pressure or

(b) against a back pressure slightly lower than the pressure to be controlled—

Or if an auxiliary pressure for operation of the regulator is desired—

We would probably recommend the FULTON BACK PRESSURE REGULATOR (Pilot Valve Type for High Inlet Pressure).

Every gasoline plant can employ this Regulator to great advantage. It is also available in a type that provides for intermittent discharge.

Our recommendation for specific installations will be furnished without obligation or a descriptive bulletin showing construction and operating details will be sent that will enable any gas engineer to judge the proficiency of these types of regulators in gasoline plant services.

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JEFFERSON COUNTY

Wichiet Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 ..... Shut down 940 ft.

LANE COUNTY

Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE cor. NW Sec. 10-3-7 ..... Shut down 600 ft.

MARION COUNTY

Empire Oil & Ref. Co.'s No. 1 Burhart, SE cor. NE NE Sec. 11-20-3 ..... Shut down 2,400 ft.

Empire G. & F. Co.'s No. 1 Blankley, NW cor. NE SW Sec. 30-20-4 ..... Drlg. 1,900 ft.

J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Rig.

A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2 .. Spudded.

MEADE COUNTY

Blackwell O. & G. Co.'s No. 1 Beyer, SE cor. NW SE Sec. 9-33-28w ..... 500,000 ft. gas and 2 bail water; total depth 4,356 ft.

McPHERSON COUNTY

Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Drlg. 2,320 ft.

Larisaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w .. Rig.

McPherson Gas Co.'s No. 1 Stein, SW cor. NE SW Sec. 17-18-1w ..... Drlg. 3,373 ft.

McPherson Gas Co.'s No. 1 Gustafson, C NE Sec. 9-17-2w ..... Shut down 3,597 ft.

W. C. Newman's No. 1 Diepenbrock, NW cor. NE Sec. 2-17-1w ..... Underreaming 3,478 ft.

McPherson Gas Co.'s No. 1 Wedell, C SW Sec. 12-20-2w ..... 5,000,000 ft. gas 2,983 ft; S.D. 991 ft.

Vickers Pet. Co.'s No. 1 Wedell, C SW Sec. 12-20-2w .... Rig.

Mid-Kansas Oil & Gas Co.'s No. 1 Yoder, C NW SW Sec. 8-20-4w ..... Drlg. 2,410 ft.

Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Drlg. 1,660 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w ... Casing 600 ft.

OSBORNE COUNTY

L. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w ... Spudded and shut down.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w .. Shut down 2,820 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w ..... Shut down 3,015 ft.

British American Oil Co.'s No. 1 Weinman, C SW SW Sec. 34-2-19w ..... Rig.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, CSW NW Sec. 15-28-14w .. Spudded and S.D.

RENO COUNTY

Austin Drilling Co.'s No. 1 Strickley, SW cor. NW Sec. 17-25-5w ..... Rig.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.

Higgins & Sternbubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w ..... Drlg. 412 ft.

ROOKS COUNTY

Prairie Oil & Gas Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Drlg. 1,300 ft.

Krueger et al's No. 1 Poore, NE cor. NE Sec. 14-8-16w .. Drlg. 3,560 ft.

Burford & Brimm's No. 1 Toxa, NE cor. SW SE Sec. 22-19-17w ..... Spudded and shut down.

Skelly and Midwest's No. 1 Jones, SW cor. NE NW Sec. 28-7-16w ..... Shut down 3,485 ft.

RUSH COUNTY

Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w ..... Drlg. 610 ft.

Sinclair Oil & Gas Co.'s No. 1 Berching, NW cor. NE NW Sec. 9-16-16w ..... Fishing 3,474 ft.

Danciger Oil & Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Shut down 530 ft.

RUSSELL COUNTY

Joe Liggett's No. 1 Maier, SE cor. NE SE Sec. 8-11-15w .. Top Oswald 3,016 ft.; show oil and water; drlg. 3,280 ft.

SALINE COUNTY

M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w ..... Spudded and shut down.

Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w ..... Cleaning out 2,615 ft.

Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w ..... Underreaming 2,847 ft.

SEDGWICK COUNTY

Bu-Vi-Bar et al's No. 1 Roberts, SE cor. SW Sec. 1-26-2w ..... Rig.

E. B. Shawver et al's No. 1 Broels, NE cor. SW Sec. 5-26-2e ..... Swb. 70 bbls. 3 hrs.; 3,020 ft.

Barnsdall Oil Co.'s No. 1 Means, NW cor. SW Sec. 34-27-2 ..... S.D. 3,242 ft.

Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2 .... S.D. 1,450 ft.

J. H. Tatlock et al's No. 1 Goelder, NW cor. NE Sec. 6-29-2e ..... Wtr. 2,635 ft; S.D.

Kyser et als' No. 1 Stroot, SW cor. NW Sec. 8-26-2w .... Drlg. 1,860 ft.

Lario & Blair's No. 1 Tjaden, C NE SE Sec. 22-29-2w ... Drlg. 2,100 ft.

Maglason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w. Shut down 250 ft.

R. Maglason et als' No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... S.D. 250 ft.

Magnolia Pet. Co.'s No. 1 Wise NW cor. NW Sec. 36-28-2w ..... Spudded.

McCulloch Oil Co.'s No. 1 John, C NE SW NE Sec. 24-29-1e ..... Drlg. 2,150 ft.

Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w ..... Rig.

Barnsdall Oil Co.'s No. 1 Faber, SW cor. NW Sec. 6-27-1w ..... S.D. 3,010 ft.

Bu-Vi-Bar Pet. Co.'s No. 1 Steel, SE cor. SE Sec. 1-26-2w. Drlg. 3,331 ft.

Connell & Slick's No. 1 Cross, NE cor. NE Sec. 27-25-1w. Drlg. 3,040 ft.

VanZant & Mason's No. 1 Fox, C NW SW Sec. 19-25-1w .. Fish. 3,030 ft.

Barnsdall Oil Co.'s No. 1 Samuels, NE cor. NW Sec. 24-25-1 ..... Swb. 70 bbls. 3 hrs. 3,121 ft.

Marland Prod. Co.'s No. 1 Goodrich, SW cor. NE SW Sec. 16-25-1 ..... Flowed 2,120 bbls. in 12 hours; pinched in.

Miller & Wentz's No. 1 Shaffer, NW cor. NE Sec. 9-27-2w ..... Rig.

Morgan et als' No. 1 Corn, SW cor. NE, Sec. 28-26-1w .. Drlg. 2,150 ft.

E. B. Shawver et als' No. 1 Reeves, SE cor. SW SE Sec. 19-28-1e ..... Drlg. 600 ft.

Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e ..... Drlg. 1,340 ft.

Washabaugh et als' No. 1 Lowery, NW cor. NE NE Sec. 3-26-2w ..... Rig.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w. Lost hole; drlg. new well 300 ft.

W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Shut down 1,213 ft.

McKenna et al's No. 1 Haun, SE cor. NE Sec. 10-33-38w. Drlg. 1,720 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Rig.

SUMNER COUNTY

McCulloch Oil Co.'s No. 1 Teetle, SW cor. NE Sec. 29-34-1w ..... S.D. 4,632 ft.

Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w ..... Fishing 4,400 ft.

Helmerich & Payne's No. 1 Warlick, SE cor. NE Sec. 8-34-2 ..... Dry and abandoned 3,854 ft.

Otstot et al's No. 1 Barlow, SE cor. SE Sec. 22-33-3w ... Plugging back to 4,150 ft.

Davidson and others' No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

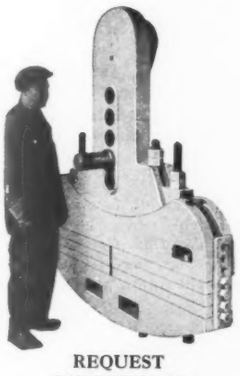
Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Drlg. 3,180 ft.

WASHINGTON COUNTY

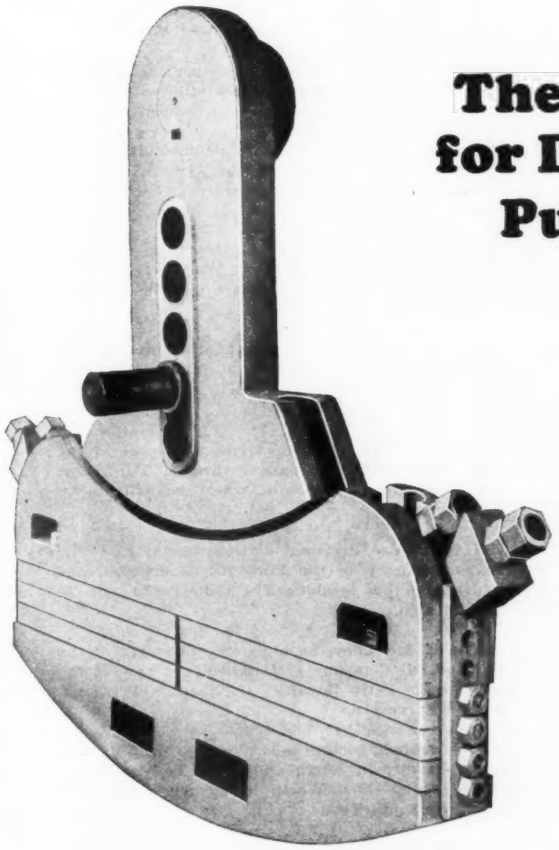
McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3 .. Rig.

OCS

Crank Type Equalizer



REQUEST
BULLETIN 88



The Balance for Deep well Pumping

Pat. Apr. 7, 1926. Other Patents Pending.

Manufactured by

THE OIL COUNTRY SPECIALTIES MFG. CO.

COFFEYVILLE, KANSAS

HILLMAN COONEY, Inc.
Los Angeles

MEN KNOWN IN OILDOM

Walle Merritt

Walle Merritt, head of the land department of the Shell Petroleum Corporation in the Gulf Coast territory since 1922, has gone to Los Angeles, Calif., where he will take charge of all land work for the Shell Oil Corporation, formerly known as the Shell Company of California. Mr. Merritt's transfer to the Pacific Coast division of the Shell companies is a well earned promotion in view of his constructive services in the Gulf Coast.

Mr. Merritt came to Houston soon after the time the Shell companies entered the Coastal territory and was here with F. P. Plummer, who came from London, England, with the primary purpose of demonstrating the torsion balance. When the Roxana Petroleum Corporation (recently renamed the Shell Petroleum Corporation) entered the territory Mr. Merritt was placed in charge of the land department.

Previous to becoming associated with the Shell companies, Mr. Merritt was affiliated with some Baltimore and Pittsburgh interests in West Texas, doing work for the pioneer Red Seal Oil Company and Island Petroleum Company.

Mr. Merritt is a graduate of the University of Michigan law school and did considerable law research work at Harvard University. Intending to engage in this profession, he received an appointment to lecture on business law in the Harvard graduate school of business administration and also an appointment to teach in the University of Michigan law school. Because of poor health at that time he declined both of these appointments and went to West Texas.

Mr. Merritt will be succeeded at Houston by H. W. Penterman, who has been with the land department of Roxana Petroleum Corporation at Tulsa.

PERSONAL PARAGRAPHS

W. K. Hughes, chairman of the board of the Continental Supply Company, is in California.

* * *

Ray S. Rosier, of the Signal Gasoline Company, of Tulsa, is home after a trip to the West Texas fields.

* * *

Roy Berray, of Wainwright, Alberta, has joined the Simpson Oil Company staff at Simpson, Saskatchewan.

* * *

T. M. Heermans, who is in charge of the sale of centrifugal pumps for Allis-Chalmers Manufacturing Company, Milwaukee, Wis., spent several days recently in the Mid-Continent in the interests of his firm.

Charles F. Morgan, independent oil operator, of San Antonio, Tex., was in Houston, Tex., on a business trip.

* * *

Park Kelley, of the Ozark Chemical Company, of Tulsa, has just returned from a trip to the West Texas fields.

* * *

Harry Miller, comptroller, Transcontinental Oil Company, Tulsa, was a recent business visitor at Fort Worth, Tex.

* * *

Forrest M. Towl, New York City, president of the Southern Group of Pipe Lines, was a Pittsburgh, Pa., visitor last week.

* * *

G. R. Elliott, advertising manager of the Skelly Oil Company, was down from Eldorado, Kans., to visit Tulsa for a few days last week.

* * *

N. M. Jones has been appointed assistant district manager of The Texas Company in northern California with offices in San Francisco.

* * *

K. G. McKenzie, consulting chemist for The Texas Company, was in Los Angeles recently on a visit but has since returned to New York.

* * *

Mark O. Danford, tax commissioner for the Midwest Refining Company, has been ill with an attack of influenza at his home in Denver, Colo.

* * *

John R. Suman, head of the Humble Oil & Refining Company production department, has returned to Houston following a recent tour of West Texas.

* * *

Paul Martin, chief scout for the Pure Oil Company, has returned to his Fort Worth, Tex., headquarters following trips to East and West Texas territories.

* * *

Ray R. Gill, former assistant treasurer of the Federal Oil & Gas Company, at Akron, Ohio, has been named state fire marshal by Governor Myers Y. Cooper.

* * *

George Barnes, for many years treasurer of the Gulf Oil Corporation, passed through Tulsa last week, en route to Honolulu, where he will take a vacation.

* * *

H. N. Pardee, assistant division manager of The Texas Company in the Fort Worth division, has returned to his headquarters following a trip to New Mexico.

* * *

John R. McGinley, formerly vice president of the Marland Oil Company of Oklahoma, is now at the head of the Petro Royalties Company, a Pettigrew & Meyers concern.

* * *

F. J. Adams, general agent for the Gulf Production Company in North and West Texas, has returned to his Fort Worth headquarters following a trip to South Texas.

* * *

W. H. Geis, vice president of the Continental Oil Company, who has been seriously ill with an attack of appendicitis, is recovering. He is in charge of California operations.

* * *

A. E. Banks, general representative of the Mexican Gulf Oil Company, Mexico City, Mexico, has returned to his post after a business trip to the Houston offices of the company.

* * *

J. H. Redpath, Pittsburgh, Pa., of the accounting department of the Southwest Pennsylvania Pipe Line Company, was called to Olathe, Kans., on account of the death of his father.

* * *

Wesley Cunningham, of the General Petroleum Corporation of California, has been appointed comptroller of that company succeeding R. S. Durkee, recently elected director and treasurer.

* * *

W. D. Waltman, vice president of Franco Wyoming Oil Company, of Denver, New York and Paris, left New York on an examination trip covering the company's interests in the Rocky Mountain area, Texas and California, and will sail from Los Angeles on February 11, returning to New York by way of Panama.

F. W. Kirk, superintendent of the Houston Pipe Line Company, Houston, Tex., has returned to his desk following a four-day automobile trip over the company's holdings in the Rio Grande Valley district.

* * *

Roy Collom, vice president of the Marland Oil Company of California, has been placed in charge of all operations in California succeeding Col. Franklyn R. Kenney, who recently resigned as president.

* * *

W. P. Cassidy, who recently announced his resignation as superintendent of the land department of the Marland Oil Company of California, has accepted a similar position with the Pacific Western Oil Company.

* * *

I. B. Funk, president of the Engineering, Research & Equipment Company, Los Angeles, Calif., is now on a two weeks' inspection trip of the Mid-Continent Field. He visited the Dallas and Tulsa offices of the company last week.

* * *

Theodore Harr, manager of the Standard Oil Company depot at Tien-tsin, China, and Clarence Holden, also an official of the Standard Oil Company of New York, were in Los Angeles recently having arrived from Shanghai, China.

* * *

Walter Ritterbusch has resigned as head of the land department for the Phillips Petroleum Company in West Texas and has entered the ranks of independent operators. He was succeeded in San Anglo, Tex., by L. K. Eastman, Bartlesville, Okla.

* * *

Guy I. Warren, formerly of Tulsa, has left Muskegon, Mich., where he is secretary of the Swastika Oil & Gas Company, for Corsicana, Tex., where his marriage to Miss Gavvie Suttle, of Corsicana, will take place the latter part of this month.

* * *

Announcement is made of the marriage at Altadena, Calif., of Betty Frances, daughter of Mr. and Mrs. William Berry, to David R. Harris, of Sooke, British Columbia, formerly of Marthaville, Ontario. Mr. and Mrs. Harris will leave next month for Maracaibo, Venezuela.

* * *

Herbert R. Gallagher recently resigned as vice president in charge of sales of the Shell Company of California in order to become president of the Shell Development Company, recently organized by the Shell oil interests to control, co-ordinate and extend research work in connection with the petroleum industry.

* * *

R. C. Holmes, president of The Texas Company, F. T. Manley, W. S. S. Rodgers, and R. Ogarrio, vice presidents, and John H. Lapham, a director, last week visited the company's refinery now under construction at El Paso, Tex. The party of officials with the exception of Mr. Manley went to California from El Paso to inspect the company's properties in that State. Mr. Manley returned to New York.

* * *

F. O. Prior, vice president and general superintendent of the Dixie Oil Company, of Shreveport, La., spent some time inspecting the Muskegon, Michigan, Field, and his company's operations there. While in Michigan he represented his company with other representatives of the Michigan Oil and Gas Association in a conference with Governor Fred W. Green and other state executives at Lansing.

* * *

Several operators from Kansas and Oklahoma fields who are associated with Frank L. Maire, of Lima, Ohio, in various branches of the oil industry, visited the Muskegon, Michigan, Field, where Mr. Maire is engaged in development work. Among them were W. L. Beam, of Chicago; D. G. Minesinger, of Iola, Kans., general manager of the Iola Pipe Line Company and the Maire-Henton Oil Company; and C. E. Burlingame, of Bartlesville, Okla., interested with Mr. Maire in the Burlingame-Maire Company, the Baltic Company and other large oil interests.

"OILWELL" HOOKS

"Oilwell" Safety Sucker Rod Hook

FAST STRONG SAFE

This hook is heavy enough to handle the longest string of sucker rods. It is perfectly balanced and has few parts.

The automatic locking device cannot open until released by hand pressure on the latch mechanism located in the handle.

The handle on the back of the hook provides a good gripping device and protects hands from accidental injury.

Oilwell Sucker Rod Hooks are heat treated.

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

NORTHERN ROTARY PUMPS "MORE GALLONS PER HORSE POWER"

In The Oil Industry

Northern Loading or Transfer Pumps are right for all Petroleum Products from Gasoline to Heaviest Crude. Northern Pumps draw Lube from 28" Vac. Stills—put Mineral Seal Oil into 400-lb. Pressure Stills—pump Casing Head gasoline against 400 lbs. line pressure — recover Pipe Line Leakage — are useful throughout the entire oil industry.

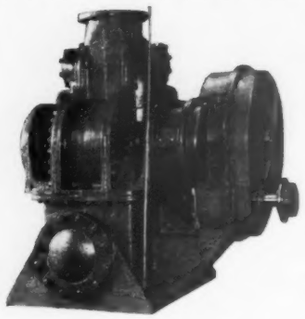

Plate 1.

The six foot high Northern Pump shown in Plate 1 loads California Crudes into Tankers at the rate of 5,000 barrels per Hour. The Herringbone Reduction Gear built into this pump steps the driver speed from 960 R.P.M. down to the Pump Speed of 175 R.P.M. quietly.

The Northern Foam Pumping unit pictured in Plate 2 is typical of dozens of similar Northern Units, protecting many Refineries and Farms.

Plate 2.

NORTHERN PUMP CO.
MINNEAPOLIS, MINN.
OFFICES IN ALL PRINCIPAL CITIES

Refinery Piping

We can help you with the piping problems peculiar to this industry. This Company, with its vast experience, its able organization and its proven record of dependablility, invites your inquiry!

POWER PIPING CO., Pittsburgh, Pa.

CONCRETE TANKS FOR STORAGE OF CRUDE OIL

(Continued from Page 34)

meant the proportion of water to cement used in mixing concrete. The law is expressed as follows:

> For given materials and conditions of manipulation the strength of concrete is determined solely by the ratio of the volume of mixing water to the volume of cement, so long as the mixture is plastic and workable.

Laboratory experiments and experience have determined that the water-cement ratio not only governs the strength of concrete but likewise, other desirable qualities, including to a great extent its degree of impermeability and liquid tightness. These two latter qualities are of major importance in the use of concrete for oil storage tanks.

After strength to withstand the static pressures exerted by the contents of the tank, comes the equally important matter of impermeability of the concrete, especially when the oil to be stored contains an appreciable sulphate content. The detrimental effect of this deteriorating substance on concrete is bound to occur from penetration. Penetration greatly increases the area of attack. Any action of disintegration is a chemical one which proceeds by the dissolving out of the essential ingredients of the binding medium, the hardened cement paste. Inferior or unsound aggregates may be affected in like manner. Therefore, the main requirements for oil-tight or impermeable concrete are durable aggregates, completely incorporated in a cement paste that is itself impervious. The requirements for an impervious paste are a low water-cement ratio and thorough curing. These two essentials will be discussed separately.

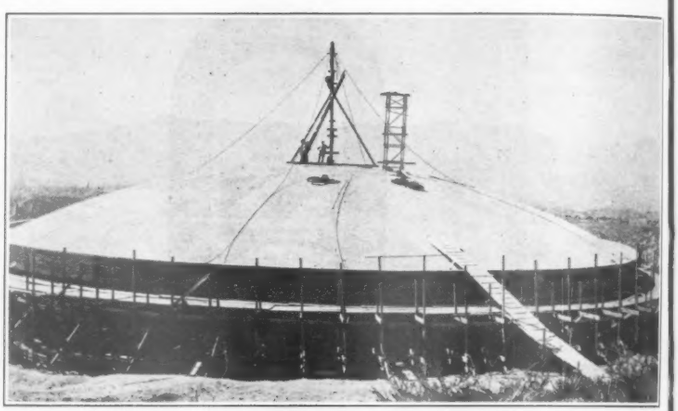

Figure 6—Completed dome top of reinforced concrete. A cross-section of this tank may be seen in Figure 10.

The facts upon which the water-cement ratio law is based are not hard to understand. Portland cement after being mixed with water, hardens through a chemical reaction between the cement and water generally expressed as the hydration of the cement. Complete hydration of a bag of cement can be accomplished by an amount of water that is insufficient to produce a material plastic enough to be handled, even when in the form of a neat grout. When sand and stone are mixed with cement to make concrete it is necessary to use an additional amount of water to produce workability. In terms of hydration this additional water may be called an excess, which is not needed to combine with the cement and cause hydration, but is required to give workability to the concrete.

Liquid Tightness

Water not used in the chemical process of hydration eventually escapes through evaporation. Any water, oil or other substances which can enter a mass of concrete after it has hardened must do so through openings once occupied by the mixing water which was not utilized in the chemical changes incident to hardening. Thus the porosity of the hardened concrete is determined by the quantity of this uncombined water. This explains why concrete made with the lowest water-cement ratio will have less porosity, and therefore greater resistance to the action of deteriorating substances.

Available tests and experiences have shown that for concrete mixtures which are placed in a plastic consistency and thoroughly cured, a water-cement ratio of from 5 to 5½ gallons per sack of cement should give a high degree of oil tightness that would meet the requirements for crude oil storage tanks.

Proportioning Concrete

In working under the water-cement ratio law, proportioning the ingredients of concrete is the most simple and accurate method of attaining the quality of concrete required for oil storage tanks. Under this principle concrete is not specified in proportions such as 1-1½-3, or 1-2-4, but instead, the amount of water to use with each sack of cement will be given. Workability will be the governing factor with the specified water-cement ratio, and it will be attained by the addition or reduction of the sand or stone until a plastic mix is attained.

It will be necessary for the operator on the mixer to know the definite proportions of materials with which to charge the mixer for each batch. These may be readily determined by the superintendent, by what is known as the trial method, which consists in finding directly by means of trial batches, the combinations of aggregates which will give the workability necessary when used with cement and water in the ratio specified. The procedure to follow is simple and can be made on the work, probably in full sized or definitely reduced batches. For this purpose the moisture content of the aggregates must first be determined. This can be done by drying a representative sample, weighing the material before and after drying. For the first batch arbitrary quantities of fine and coarse aggregate can be used based on previous experience or an estimate of the probable requirements for the particular work. In computing the water to be added to this batch, the amount carried by the aggregates, as shown from the moisture test, is deducted from the total amount indicated by the water-cement ratio selected. A glance into the mixer will show whether the estimated quantities are giving a consistency near enough to that desired to permit its use directly in the work. If this is not the case, the proper additions can be made before completing or discharging the mix. If the mix is too stiff, both cement and water in the proper ratio should be added. If it is too wet, either sand or coarse aggregate or both can be added as appears desirable. The moisture carried by these small additions will, of course, slightly alter the water-cement ratio but, if the additions are small, this change would be slight and could be ignored, providing in subsequent batches the correct ratios are maintained.

The appearance of this first batch and

(Continued on Page 144)

Oil Service is tough—

FERODO LININGS are tougher

Use Ferodo Linings with confidence in any of the many services where you *must* have reliable braking control.

The heaviest loads and the deepest drops . . . where oil and acids, or alkalis and grits, prevail . . . under the heaviest pressures and high heats . . . these are the services in which Ferodo excels.

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[*Also: Ask for samples of Permanite—the original, highly compressed, sheet packing.*]

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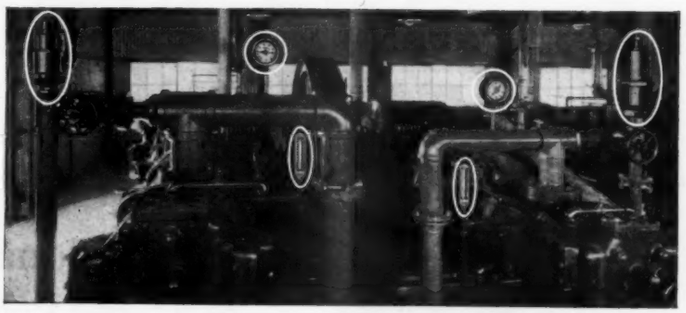

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Gauge Testers	D-5
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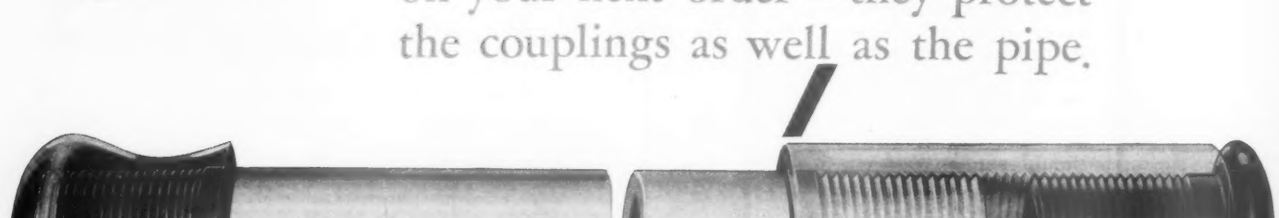
THE Colona Thread Protector protects and keeps clean the threads on pipe and couplings—their use assures you of undamaged ends—of perfect, clean threads and of a positive, correctly seated joint.

Manufacturers of pipe benefit by delivering the pipe to you in perfect condition.—You benefit by eliminating delays, rethreading and lost pipe shop labor.

Ask for Colona Thread Protectors on your next order—they protect the couplings as well as the pipe.



Colona Manufacturing Company

Pittsburgh, Penna.

ROCKY MOUNTAIN AREA

(Continued from Page 53)

NW NE NE Section 27-4n-92. It topped the Sundance sand at 3,235 feet and was drilled to 3,262 feet, where it was completed with a production of 700 bbls. natural the first 24 hours. It had some production, along with water, in the Morrison, but the well was started with the Sundance as the objective and the Morrison oil and water were cased off. The well is one location east of No. 4-SD Shaw, the farthest south of any producer on the structure. No. 4-SD was completed at 3,426 feet last November with a production of 300 bbls. natural. However, it had previously been on production for some time from the Morrison and was drilled deeper only when efforts to shut off the Morrison water were unsuccessful. No. 3-SD Shaw also is an offset on the south to the Midwest's No. 34-SD in Section 22-4-92, which entered the Sundance at 3,227 feet and was completed a year ago at 3,290 feet, and started off at 188 bbls. per hour and averaged 90 bbls. per hour in the last five hours of a 24-hour test.

Another well in the Iles area which is being closely watched is the Thomas McLaughlin and others' No. 1 Williams, SW NW SW Section 2-3n-92, in the area south of the major fault that crosses the Iles Dome and which separates this well from the producers. The fault block lies between the Iles Dome and the Thornburg Dome. No. 1 Williams is strictly a wildcat spotted with a view to testing the theory that oil may be trapped south of the fault, and the depth to the different horizons is largely guesswork, based on the logs of the Iles and Thornburg wells. At 1,735 feet it entered a brown sandy shale which continued down to 2,185 feet. It showed a little water at 2,030-2,185 feet. At the last named depth the water increased until it stood 1,200 feet in the hole. It was then in black shale from 2,185-2,390 feet. A shell with a good showing of light green oil was cut at 2,390-95 feet and the hole then went back into shale and is drilling at 2,550 feet. The shale it is now in resembles very closely the Mowry above the Dakota, but inasmuch as the Frontier apparently had not been cut, this interpretation was accepted with considerable reserve. However, a check of logs of different wells in the Iles and Thornburg areas has resulted in some speculation as to the possibility of the sandy shale just above the shell showing the oil was not in reality the Frontier. If that is true, the well is now below the Frontier and running much higher than expected. The Frontier apparently thins towards the south, as one well on the north side of Iles showed it to be 104 feet thick, while another, No. 1 Wymore, on Thornburg to the south gave it a thickness of only 11 feet, and part of that was not all sand. Until a definite marker is found, some doubt will remain as to the situation, but it at least opens the way for some interesting speculation.

Other Iles Dome Operations

Other drilling operations at Iles show only routine progress. The Midwest's No. 24-SD Parkinson, SE NW Section 22-4-92, is bottomed at 2,865 feet in black shale and cleaning out and underreaming the 10-inch, which is at 2,849 feet. The McCormick Oil Co.'s No. 1-A Sales, SE SE Section 28-4n-92, is rigging up, and the Texas Production Co.'s No. 36 Lloyd, SE cor. Section 21-4-92, is drilling at 3,119 feet. On the Moffat Dome, to the northeast of Iles, the Texas Production Co.'s No. 11 Knowlton, SE cor. Section 33-5n-91, is through the Dakota and Lakota and drilling towards the Morrison at 4,100 feet. Same company's No. 5 Wick, Section 10-4-91, is underreaming at 4,332 feet and carrying the 6¼-inch at 4,324 feet. Total depth is 4,596 feet. On the Hiawatha Dome, south of the Wyoming line, the Ohio Oil Co.'s No. 1 Rejter-Foster, SE cor. Section 16-12n-100, is drilling ahead at 3,300 feet in a small hole with no more gas showing after encountering a flow of 1,000,000 feet below 3,165 feet in a sandy break. Drilling will continue as deep as possible. It is geologically deeper than any of the gas well drilled on the structure, and as it is on the flank, it was hoped that oil would be found.

In Routt County the Texas Production Co.'s No. 6 Quaintance-Hocking, Section 18-6n-86, Tow Creek Dome, pulled the 12½-inch to redrill. Total depth is 350 feet. Same company's No. 4 Belle Dennis, NE SE Section 7-6-86, the Sundance test, is drilling at 4,053 feet. The Hynds Oil Co.'s No. 2 State, SW NW Section 17-6-86, is fishing for tools at 3,150 feet and has 1,500 feet of oil in the hole. Plans are to go 100 to 150 feet deeper before completing.

Fort Collins Dome

In Larimer County the Continental Oil Co.'s No. 1 Messerschmidt, NW cor. NE Section 30-8n-68, on the Fort Collins Dome, has been abandoned at 4,995 feet. This well was completed in the Muddy sand at 4,580 feet in 1925 with an initial production of 300 bbls. Last year it was decided to drill it down to test the Dakota and Lakota and possibly the Sundance. The Muddy proved to be 70 feet thick. At 4,830 feet it was reported to have a good show of oil from the Dakota through 4,000 feet of water. It was cemented at 4,900 feet and then drilled to 4,995 feet. It is doubtful if the test went below the Lakota. There are rumors that a test was drilled to the Sundance before the Union Oil Co. of California sold the property to the Continental, but no confirmation has been given out. This test was said to have been made with a core drill. The Continental's No. 3 Mitchell, NW SE NE Section 6-9n-68, on the Wellington Dome, commenced spudding January 19. It is one-fourth of a mile east of No. 1 Mitchell, the second well completed on the structure, which came in for 80,000,000 feet of gas. The Union did very little drilling in the vicinity of the big gas well. North of the Wellington Field, Stanley Barrows' No. 1, NW SE Section 7-11n-68, on the Round Butte structure, is in the Morrison sand below 1,955 feet and showing some oil, and will be carried on down to the Sundance. Some extensive surveys are being made in the area in which this structure is located and details are being withheld temporarily.

Pueblo Discovery

No important change has taken place at the Rozella Oil Co.'s No. 1 Shaw, NW NW Section 3-22-63, southeast of Pueblo, where a discovery of oil at 1,190 feet was reported three weeks ago. The well has been idle without being tested, due to litigation over titles. The company is not incorporated and the dispute is said to be between the original lease holders as to division of interests. Dean E. Winchester, consulting geologist of Denver, visited the well this week. He took some samples of shale at an exposure about half a mile from the well, the only exposure found in that vicinity, and he is having these analyzed in Denver to determine the surface formation. When that is ascertained it will give some basis upon which to work in determining the horizon from which the oil is coming. Mr. Winchester stated that he talked with a reliable party who had seen the well bailed a few days previous and that the line showed the oil standing within 200 feet of the top. That indicates that it has risen about 300 feet since the strike was first made. The bailer, it was stated, went to the bottom of the hole and brought up nothing but oil. It had previously been reported that there was a little water showing at the bottom. While reports of wells to be drilled in the area are current, none has yet been started. At least two are under contract to begin by March 15. Most everybody is waiting for a test on the Rozella well before committing themselves.

The Continental Oil Co. has an average producer in its No. 3 Francis Hall, SW SE Section 35-18-70, in the Florence-Canon City district in Fremont County. Hammond & Beltramo's No. 1 Zontini, SW cor. Section 2-19-70, an operation not heretofore reported, is bottomed at 1,550 feet and shut down to case. Tobin & Hoffman's No. 1 Sells, NW SE Section 33-18-70, also previously unreported, is drilling at 1,230 feet.

In Montrose County the Uncompahgre

MILLER COMBINATION BAILER & SAND PUMP—*Speed With Certainty*

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used for cutting the sand loose and preferred by some to the Chisel Bottom.

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will save the expense of running tools and its chisel shape prevents sticking in tightly packed sands.

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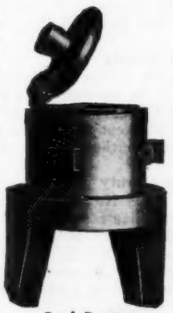

Sand Pump
Bottom illustrated in position in the pump.

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MILLER

Combination Bailer & Pump Co.

SAPULPA, OKLAHOMA

Oil & Gas Co.'s No. 1, Section 27-50n-10, which has been shut down at 1,450 feet awaiting a geological report, has resumed. It is through the Sundance and will be continued in the Shinarump conglomerate.

The Grand Union Oil Co.'s No. 1, Section 19-17-67, Red Creek Dome, El Paso County, is bottomed at 2,565 feet and underreaming to set the 6⅝-inch on bottom to shut off water from sand at 2,519-21 feet. Water stood 2,100 feet in the hole.

In Huerfano County, the Parker Club, Inc., No. 1 fee, Section 4-28s-68, Badito-Alamo structure, is shut down after cementing the 12½-inch at 1,265 feet.

The Ruby Hill Oil & Gas Co.'s No. 1 Braden, Section 24-4s-69, Jefferson County, is drilling at 810 feet with 12½-inch on bottom. This company is conducting a campaign for the sale of stock over the radio.

The Kelly Oil Co.'s No. 1 State, Section 36-14-57, Lincoln County, which attracted some attention recently with a show of oil at 1,397 feet, is bottomed at 1,540 feet and reported making quite a little gas. The oil show was cased off. The 5 3/16-inch is at approximately 1,530 feet. Fishing for tools is in progress, but as the tools are stuck in the casing, it is believed this will not take long.

WYOMING

Little progress was reported this week on any of the Wyoming wildcats due to the cold weather. Only one completion was reported, this being in the Salt Creek Field, where the Wyoming Oil Fields Co.'s No. 19, SE Section 26-40-79, was completed at 1,590 feet with an initial production of 206 bbls. This is a producer from the third Wall Creek at 1,490-1,530 feet. The Producers & Refiners Corp.'s No. 1, Section 14-25-89, Sherrard Dome, in Carbon County, had to close down at 3,027 feet due to gas line freezing. The Utah Southern Oil Co.'s No. 3, Section 29-56-97, on the Garland Dome in Big Horn County, drilled out cement plug at 3,317 feet, but on account of the cold weather, decided not to release the well and let it blow for fear that when it cleaned itself of water the connections and valves might become frozen and prevent the creating of the desired suction. The Midwest Refining Co.'s No. 1, Section 35-22-115, Waterfall structure, Lincoln County, succeeded in recovering tools at total depth of 2,355 feet, but on account of cold weather, shut down temporarily.

The Producers & Refiners' No. 1, Section 7-57-97, Sage Creek Dome, Park County, is bottomed at 1,573 feet in pink shale and underreaming the 10-inch at 1,541 feet. The Ohio Oil Co.'s No. 1 Pulley, Section 27-53-101, Shoshone structure, has not yet succeeded in shutting off water and making a test. Oregon Basin operations show only a few wells drilling and nothing outside of routine to report. The Midwest's No. 1 Kirk, Section 23-58-98, Frannie Dome, is drilling at 1,280 feet in shale, having passed out of the water sand, and its No. 36 Rosenberg, Section 25-58-98, is shut down at 52 feet. The Texas Production Co.'s No. 1, Section 23-45-100, Skelton Dome, Hot Springs County, is drilling at 1,000 feet, and Herman B. Gates and others' No. 1, Section 6-33-94, Alkali Butte Dome, in Fremont County, has commenced spudding. The California Co.'s No. 1 Union Pacific, Section 7-17-116, Muddy Creek Dome, Uinta County, is drilling at 2,479 feet and still in white sand, and same company's No. 1 Wyss, Section 12-32-115, Sublet County, is drilling at 1,283 feet in hard gray limey sand.

MONTANA

Montana fields are still in the grip of cold weather and little has developed the past week. The thermometer went to 51 below zero at Billings and 40 below at Great Falls. Even colder areas are reported from the country districts of the State.

The Hibbing Faunce No. 7 in the Sunburst Field is arousing much comment now. This well was drilled as a deep test. At 1,406 feet the hole had a showing of oil and was shot, but as a commercial well did not develop. The hole was drilled to a total depth of 2,000 feet. Now the well is a producer. If the oil comes from the 1,406-foot horizon, which is the Ellis sand, it is just an ordinary matter, if the oil is coming from 2,000 feet, the well has opened a new producing horizon and a new development campaign is in order. Opinion is divided as to where the oil is coming from.

Even the electric powered wells in Pondera Field were shut down by the intense cold the past week. Six wells in Pondera are ready to drill in as soon as the weather moderates. One on leases of the Fulton Petroleum Co. and the remaining five on leases of the Midwest Refining Co. A Chinook is promised in the near future by the weather man and this will let the work start up again.

ROCKY MOUNTAIN PRODUCTION
Daily Average Runs Week Ended February 2

WYOMING	
Salt Creek	32,140
Big Muddy	2,230
Grass Creek	2,310
Elk Basin	590
Frannie	...
Ferris	50
Rock River	2,440
Lance Creek	310
La Barge	2,680
Poison Spider	1,030
Oregon Basin	3,910
Osage	470
Lander	450
Byron	40
Lost Soldier	3,330
Simpson Ridge	60
Dutton Creek	50
Rex Lake	140
Hamilton Dome	720
Alkali Butte	50
Greybull	10
Teapot	40
Total Wyoming	52,050
MONTANA	
Cat Creek	1,470
Kevin-Sunburst	6,740
Pondera	2,680
Total Montana	10,890
COLORADO	
Florence	1,108
Moffat	916
Fort Collins	2,816
Iles Dome	1,525
Rangely	100
Tow Creek	412
Boulder	25
Total Colorado	6,902
NEW MEXICO	
Rattlesnake	461
Hogback	520
Artesia	962
Cap Rock	119
Table Mesa	....
Total New Mexico	2,062
Total Rocky Mountain	71,904

SOUTHWEST WILDCATS

(Continued from Page 49)

150 feet to south and east lines, is drilling at 3,617 feet. Crays & McCardle's No. 1 Hicks & Hicks, Perdernal grant, 150 feet to northeast lines and 200 feet to southeast lines, has been spudded in.

Webb County

Edouard Raymond's No. 1 Schmellzer, Share 2, J. Galan grant, Brewster pasture, is moving on. G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet to east line and 150 feet to south line. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet to east line and 2,584 feet to south line, is moving on.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4, is moving in rig. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 4, located 333 feet to northeast lines and 194 feet to southeast lines, is rigging up.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate, east of Bastrop, has resumed drilling and is down 2,320 feet. Billy Mayfield's (Krebs & Leach) No. 2 McColl, Stephen F. Austin Survey, 50 yards west of the No. 1, is shut down at 1,010 feet.

Bexar County

Allen Burnam's No. 1 Ward, A. A. Gardiner Survey, 1,200 feet to east line and 25 feet to south line, is drilling at 1,600 feet. Dixie Oil Co.'s No. 1 Medina Irrigation Co., William Miller Survey No. 180, located 1,666 feet to north line and 470 feet to west line, spudded in and shut down. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, is location 300 feet north of the No. 1. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Bavarro Survey No. 5, located 180 feet to CEL, spudded in with light rig and is now changing to heavy rig to drill to Edwards lime.

William M. Morgan's No. 1 E. S. Bridge, about 400 feet southeast of juncture of Hildebrandt and Gardner roads, is moving in derrick. Moore & Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet to east line and 1,500 feet to south line at 383 feet is underreaming casing. B. L. Raborn's No. 1 Engleman, John James Survey No. 73, located 300 feet to south line and 600 feet to east line, has resumed work at 1,715 feet.

Caldwell County

Fred Adams' No. 1 Burney, Gideon Pace Survey, is down 2,802 feet in Edwards lime sulphur water and is shut down. Bartlett Brothers' No. 2 G. N. Martindale, W. G. Steffey Survey, 750 feet southeast of the No. 1, is drilling at 1,622 feet, top of chalk at 1,190 feet. John V. Edwards' No. 1 W. C. Caldwell, Cornelius Crenshaw Survey, 600 feet to south line and 300 feet to east line, is fishing at 1,700 feet. George B. Walker and others' No. 1 L. H. Lynch, Dorothy Benton Survey, 300 feet to south and west lines, is drilling at 1,905 feet in top of the chalk. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, is moving in machinery.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tulley Survey, 910 varas, 5 degrees, 30 minutes west of north corner of John C. Post Survey, is drilling at 2,390 feet.

Colorado County

National Oil Co.'s No. 1 H. T. Brandt, Freeman Pettus League, 150 feet to south line and 1,000 feet west of highway, is location. Shell Petroleum Corp.'s No. 1 Neuendorff, J. Brod Survey, is location 500 feet to east line and 200 feet to south line.

Edwards County

McMan Oil & Gas Co.'s No. 1-B Walter Schreiner, H.E.&W.T. Railway Survey, Section 50, Block F, 330 feet to south and east lines, is fishing at 3,995 feet.

Frio County

Austin Johnson and others' No. 1 Eschenburg, E. Gallagher Survey No. 788, is location 1,250 feet to east line and 1,625 feet to south line. Pilgrim Oil Co.'s No. 2 Blackaller, James Gouley Survey, is standing at 3,218 feet waiting on rock bit.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldroon League No. 5, located about 250 varas to north line of league and a little west of center, is shut down at 2,078 feet and will resume in a short time. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, located 300 feet to north and east lines, is drilling at 850 feet. R. E. Phalon's No. 1 Cervenka, Fayette County School Lands, is drilling at 3,168 feet.

Goliad County

Booth McCarson's No. 1 E. V. Murray, Goliad Survey No. 3, located 200 feet to west line and 150 feet to south line, is location. Southern Crude Oil Purchasing Co.'s No. 1 J. E. Pettus, near Cabeza Creek, is drilling at 3,825 feet in hard sticky shale.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, NW cor., has derrick up and part of the rig on the ground. Joe Bruner's No. 1 Miller, Richard Heath Survey, 3,040 feet to north line and 200 feet to east line, is preparing to resume drilling. Dunning & Pierce's No. 1 Keepers, R. Ward Survey, is standing at 203 feet. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, east central part, is moving in heavy rig at 4,800 feet to deepen to 6,000 feet. W. G. Malone's No. 1 Staton, J. M. Salinas Survey, 375 feet to southwest lines and 1,275 feet to northwest lines, is shut down at 400 feet. L. P. Unkel's No. 1 Lumm & Bouldin, R. Ward Survey, Block 10, located 570 feet to CSL, is moving back heavier rig to resume drilling.

Guadalupe County

Pat Armstrong's No. 1 Halm, Wakefield Survey, has derrick up. G. A. Greene's (Brodie and others) No. 1 B. B. Dix, Ira Nash Survey, 610 feet north of road and 320 feet to east line, is drilling at 565 feet. J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, 1,100 feet to southwest lines and 1,130 feet to southeast lines, is testing at 1,053 feet. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 [illegible] to west line and 775 feet to south line, is to drill in within a few days at 1,[illegible] feet. T. H. Poole's No. 1 C. Woeble, John King Survey, 310 feet to north line and 210 feet to east line, is drilling at 1,250 feet. Shell Petroleum Corp.'s No. 1 Charles Grein, Mansola Survey, [illegible] of Seguin 4 miles, has been spudded in. Simms Oil Co.'s No. 1 E. Jandt, J. I. Clements Survey, 150 feet to north and west lines, is moving in machinery.

Hays County

Estess-Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 285 [illegible] to northwest lines, is standing at [illegible] feet.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, John McHenry Survey, 720 varas to northwest lines and 3,700 varas to southwest lines, is shut down at 3,020 feet. The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, located 5,108 feet to south line and 150 feet to west line, is drilling at 3,030 feet. Wright Brothers' No. 2 Classen is drilling at 3,390 feet; No. 6 Drushell is being deepened.

Karnes County

W. E. Hewitt's No. 1 W. E. Porter, 6 miles south of Runge, has been spudded in.

Kinney County

Mardon Oil Co.'s No. 1 Jim Clamp, Survey 346, Section 1,492, located 5,[illegible] feet to west line and 5,675 feet to south line, is drilling at 2,508 feet in upper part of the Edwards.

Lavaca County

The Texas Company's No. 1 Russek, H. Martin Survey, 150 feet to south and west lines, is drilling at 940 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio ranch, A. Rivas Survey, Section 7, is testing gas show at 1,320 feet. Rycade Oil Co.'s No. 3 Chittim, Section 116, Block 7, is drilling at 1,415 feet; No. 3 Sullivan, Section 71, Block 7, is drilling at 5,280 feet.

Medina County

California-Medina's No. 1 Rothe, Survey 1,012, is shut down at 3,278 feet. Carl G. Cromwell's No. 1 Taylor, Section 135, Block 28, located 210 feet to north line and 155 feet to east line, is shut down at 350 feet. Donaldson Oil Development Co.'s No. 1 Adams Co., Survey 25, located 160 feet to east line and 1,227 feet to south line, is drilling at 2,400 feet in basal anacacho with shale saturated with oil at 2,300 feet.

Lynch and others' No. 1 Mott is at 503 feet waiting for pipe. North & South Development Co.'s No. 1 Charles Nehr, Survey 441, located 150 feet to south line and 7,479 feet to east line, is drilling at 3,437 feet. Richardson's No. 2 Tom Bendele, 75 feet north of the No. 1, is standing at 937 feet, oil showing at 915 feet. Cecil Switzer's No. 2 Zerr is preparing to start drilling.

Nueces County

Nueces River Basin Development Co.'s No. 1 F. C. Allen, G. Farrier Survey, 1,596 feet to south line and 474 feet to west line, is shut down at 2,908 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet to northwest lines and 3,074 feet to northeast lines, is drilling at 2,050 feet. Dunlap & Wilkinson's No. 1 Rooke, 1 mile north of Arkansas River and 700 feet west of railroad, is standing at 2,750 feet. J. M. Davis and Tom Horn's No. 1 Howard, Section 8, located 600 feet to north line and 2,640 feet to east line, has resumed drilling at 1,957 feet. Magnolia Petroleum Co.'s No. 1 Glenewinkle, J. Scott Survey, 330 feet to south and east lines, is drilling at 2,600 feet.

San Patricio County

C. I. Albertson's No. 1 Boscamp, W. R. Hazen Survey, 200 feet to CNL, is shut down at 1,420 feet. George B. Pickett's No. 1 Whitworth, NW NW Section 60, is shut down at 3,250 feet.

Uvalde County

Pure Oil Co.'s No. 2 J. D. Smythe, G.C.&S.F. Railway Survey No. 687, located 1,920 feet south and 265 feet east of the No. 1, has been spudded in.

Travis County

Flynn Brothers' No. 1 St. Edwards

University, has spudded in and is drilling with spudding machine. Mid-Kansas Oil & Gas Co.'s No. 1 P. Wolff, G. C. Jennings Survey, is location 150 feet to north and east lines.

Victoria County

Houston Oil Co.'s No. 3 McFaddin is location for deep test; No. 2 Dr. Allen Kyle is drilling at 1,160 feet. Humble Oil & Refining Co.'s No. 1 Kohutek is drilling at 360 feet.

OKLAHOMA FIELDS

(Continued from Page 44)

erecting the rig for No. 3 Amos "B," NE cor. SW, Section 7-5-8. No. 4 Amos "B," SW cor. NE SW, Section 7-5-8, is also a rig under construction. Sunray Oil Co. made location for No. 2 Amos, NE cor. SE SW, Section 7-5-8. Louisiana Oil Refining Co. has the rig up for No. 5 Reed, SE cor. NE NE, Section 18-5-8.

Tidal Oil Co.'s No. 2 Walker, NE cor. SE SE, Section 35-10-5, Earlsboro Pool, made 340 bbls. from sand at 4,076 feet after plugging back from 4,253 feet. No. 3 Walker, SE cor. NE SE, Section 30-10-5, drilled to 4,313 feet in Wilcox sand and plugged back to 4,065 feet where it made 55 bbls. Burke Greis Oil Co.'s No. 1 Mayes, SE cor. NE NE, Section 1-9-5, Earlsboro Pool, made 600 bbls. from Wilcox sand at 4,395-4,414 feet. Magnolia Petroleum Co.'s No. 1 Moore, NW cor. NE SE, Section 24-9-5, was completed for 504 bbls. in sand at 4,210-24 feet. Skelly Oil Co.'s No. 3 Sheppard, NW cor. SW NW, Section 6-9-6, made 1,025 bbls. from Wilcox sand at 4,285-4,304 feet. Skelly Oil Co. and Atlantic Oil Producing Co.'s No. 4 Sherry, NE cor. NW SW, Section 6-9-6, produced 278 bbls. from Wilcox sand at 4,642-57 feet.

Shell Petroleum Corp.'s No. 1 Glass, NW cor. SE, Section 26-7-6, Little River Pool, was completed for 44,000,000 feet of gas in sand at 3,180-3,208 feet. T. B. Slick's No. 2 Wood, NW cor. NE SW, Section 26-7-6, made 380 bbls. from Gilcrease sand at 3,190-3,209 feet. Marland Oil Co. and Shaffer Oil & Refining Co.'s No. 1 Harris, SE cor. SW, Section 4-7-7, swabbed 715 bbls. from sand at 4,501-04 feet. T. B. Slick's No. 1 Chilcoat, NW cor. NE, Section 9-7-7, pumped 35 bbls. from sand at 4,617-20 feet. Sinclair Oil & Gas Co.'s No. 5 Nakotche, SW cor. NE SW, Section 18-5-8, Allen Pool, was completed for 25 bbls. in Gilcrease sand at 2,417-75 feet.

Gypsy Oil Co. has dug the cellar for No. 7 N. Barkus, NE cor. SE SW, Section 6-8-6, Mission Pool. No. 3 S. Barkus, NE cor. SW NW, Section 7-8-6, is also a cellar. Location was made for No. 5 Hardy, NW cor. SE NW, Section 7-8-6. No. 6 Hardy, NE cor. SE NW, Section 7-8-6, is also a location. Sinclair Oil & Gas Co. made location for No. 1 Bean, SE cor. NE NW, Section 11-8-5.

Pottawatomie County

Sinclair Oil & Gas Co. has the rig up for No. 2 Calvin, NE cor. SE SW, Section 7-8-5, Maud Pool. Twin State Oil Co. moved the rig out for No. 3 Colvin, SE cor. NE SW, Section 7-8-5. Wilcox Oil & Gas Co. has the cellar dug for No. 3 Smith, NE cor. NW SE, Section 8-8-5. Gypsy Oil Co. has built the rig for No. 6 Miller, SW cor. NE SE, Section 18-8-5. No. 7 Miller, NW cor. SE SE, Section 18-8-5, is also a rig. Marland Oil Co. and Shell Petroleum Corp.'s No. 2 Everetts, SE cor. NW SW, Section 18-8-5, is a cellar. Mid-Continent Petroleum Corp. is erecting the rig for No. 3 Shelton, SW cor. NE NE, Section 18-8-5.

The Prairie Oil & Gas Co. made location for No. 7 Campbell, SW cor. NE SW, Section 18-8-5. W. B. Pine made location for No. 2 Linger, NW cor. SW NE, Section 18-8-5. Pure Oil Co. is building the rig for No. 7 Lindley, NE cor. SW SE, Section 18-8-5. No. 8 Lindley, SE cor. NW SE, Section 18-8-5, is also a rig being built. Skelly Oil Co. and Margay Oil Co.'s No. 4 Linger, SE cor. NW NE, Section 18-8-5, is a rig under construction. Magnolia Petroleum Co. moved the rig out for No. 2 Green, NW cor. NE NW, Section 20-8-5. Marland Oil Co. made location for No. 1 Smith, SW cor. NE, Section 20-18-5. Westheimer & Daube's cellar is dug for No. 2 Garrett, SE cor. SW, Section 23-7-4, St. Louis Pool.

Blackwell Oil & Gas Co. is building the rig for No. 2 Cherry, NE cor. NW NE, Section 25-7-4. Magnolia Petroleum Co. made location for No. 5 Cherry, NW cor. SW NE, Section 26-7-4. T. B. Slick is building the rig for No. 2 Pugh, SE cor. SW SE, Section 7-7-5. Magnolia Petroleum Co. is erecting the rig for No. 4 Brandenburg, NE cor. SW NW, Section 18-7-5. The rig is also under construction for No. 5 Brandenburg, SE cor. SW NW, Section 18-7-5. T. B. Slick and Maud Oil & Gas Co. made location for No. 7 Davis, NE cor. SW NE, Section 18-7-5. No. 8 Davis, NE cor. NW NE, Section 18-8-5, is also a location.

Wilcox Oil & Gas Co.'s No. 1 Smith, NW cor. SE, Section 8-8-5, made 1,142 bbls. from sand at 4,160-63 feet. Amerada Petroleum Corp. and Barnsdall Oil Co.'s No. 1 Wallace, SW cor. Section 17-8-5, was completed for 880 bbls. in Hunton lime at 4,074-4,125 feet. Gypsy Oil Co.'s No. 1 Miller, SW cor. SE SE, Section 18-8-5, has been completed for 785 bbls. in Hunton lime at 4,138-59 feet.

Sinclair Oil & Gas Co.'s No. 4 Bellars, NE cor. Section 19-8-5, made 1,245 bbls. from sand at 4,051-73 feet. Amerada Petroleum Corp.'s No. 1 Green, NW cor. Section 20-8-5, flowed 1,680 bbls. from sand at 4,138-49 feet. Interocean Oil Co.'s No. 3 McGee, SE cor. NE SE, Section 23-7-4, swabbed 200 bbls. from Wilcox sand at 4,260-85 feet. Sinclair Oil & Gas Co.'s No. 4 Neeley, SW cor. NW SW, Section 25-7-4, was completed for 560 bbls. in Simpson sand at 4,184-4,235 feet.

Gypsy Oil Co.'s No. 2 Roseman, SW cor. SE NW NE, Section 26-7-4, made 697 bbls. from Simpson sand at 4,075-95 feet. The Prairie Oil & Gas Co.'s No. 1 Richard, SW cor. SE SE, Section 27-7-4, has been abandoned at 4,421 feet in Wilcox sand. Magnolia Petroleum Co.'s No. 7 H. Youts, SE cor. NW NW, Section 20-7-5, flowed 1,421 bbls. from Wilcox sand at 4,582-92 feet. Sinclair Oil & Gas Co.'s No. 4 Nadash, SW cor. NW, Section 29-7-5, was completed for 13 bbls. at 4,172 feet. Magnolia Petroleum Co.'s No. 1 Nicholas, NW cor. Section 31-7-5, swabbed 194 bbls. from Simpson sand at 4,245-68 feet.

The production of the more recent pools of the Greater Seminole Field by companies and leases on Thursday, January 31, 1929, follows:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Nitey	2- 7-6	3	795
Amerada-Wilcox:			
Fore	35- 8-6	2	655
Barnsdall:			
Cotcha	23- 7-6	2	1,080
Hotulke	22- 7-6	3	302
Walker	4- 7-6	1	455
Blackwell:			
Baker	11- 7-6	4	1,820
Nitey	35- 8-6	6	1,960
Talley	14- 7-6	4	1,205
Bryan & Emery:			
Walker	4- 7-6	1	13
Carter:			
Cotcha, M.	23- 7-6	3	267
Cudjo, L.	23- 7-6	2	237
Fish	36- 8-6	4	550
Harjo, C.	11- 7-6	3	3,805
Harjo, M.	13- 7-6	3	2,950
Jackson	11- 7-6	4	1,565
Larney	24- 7-6	4	3,500
Lena	10- 7-6	1	1,732
Moore	11- 7-6	2	645
Tewee	14- 7-6	6	2,470
Thomas	11- 7-6	1	190
Wilson	12- 7-6	2	280
Champlin:			
Tewee	14- 7-6	2	767
Continental:			
Cosar	36- 8-6	7	1,620
Cosar, M.	25- 8-6	1	361
Continental & Fisher:			
Milsey	11- 7-6	2	278
Empire:			
Charty	24- 7-6	1	47
Coker	13- 7-6	1	515
Sandlin	3- 7-6	1	10
Gypsy:			
Brown, C.	33- 8-6	2	375
Brown, M.	33- 8-6	1	857
Campbell	33- 7-6	2	110
Conard	22- 7-6	2	830
Cosar, W.	36- 8-6	2	55
Cotcha	23- 7-6	6	2,842
Denmark	11- 7-6	4	1,157
Hulhoke	14- 7-6	10	2,550
Mungee	1- 7-6	1	10
Payne	5- 7-7	1	....
Pottie	35- 8-6	4	1,440
Renton	11- 7-6	3	422
Independent:			
Davis, R.	13- 7-6	3	2,690
Tewee	14- 7-6	6	2,418
Williams	15- 7-6	1	665
Independent & Highway:			
Harris	23- 7-6	8	3,136
Independent & White Eagle:			
Davis	2- 7-6	4	410
I. T. I. O.:			
Campbell	1- 7-6	1	88
Dungan	35- 8-6	3	349
House, M. A.	1- 7-6	1	52
House, W. E.	1- 7-6	1	5
House "B"	2- 7-6	4	716
Hull	26- 8-6	3	317
Jackson	1- 7-6	3	425
McCulla	1- 7-6	3	216
Nitey	2- 7-6	6	151
Phoebe "A"	36- 8-6	2	76
Phoebe "B"	36- 8-6	3	70
Reed	1- 7-6	1	10
Soketheche	1- 7-6	3	570
Magnolia:			
Cruse	2- 7-6	4	225
Denby	11- 7-6	4	504
Dixon	31- 8-7	1	2
Harjo, A.	14- 7-6	2	170
Harjo, B.	14- 7-6	2	312
Pottie	35- 8-6	4	150
Reed, E.	31- 8-7	1	32
Reed, I.	22- 7-6	3	448
Marland-Shaffer:			
Harrison	4- 7-7	1	45
McCulloch & Sands:			
Harrison	4- 7-7	1	15
Mid-Continent:			
Brunner	11- 7-6	4	400
Eleck	23- 7-6	1	120
Smith	6- 7-7	2	3,378
Wadsworth	36- 8-6	7	440
W. B. Pine:			
Hoyecha	26- 8-6	6	2,575
Pine-Phillips:			
Pottie	35- 8-6	2	615
Prairie:			
Chilcoat	25- 8-6	3	850
Dungan	35- 8-6	1	....
Gibson	14- 7-6	5	1,730
Harris	14- 7-6	4	1,630
House	2- 7-6	4	40
Johnson	24- 7-6	1	675
Lustey	6- 7-7	1	50
Moppin	24- 7-6	2	1,730
Talley	14- 7-6	4	1,910
Prairie & Amerada:			
Sunny	14- 7-6	7	5,940
Pure:			
Brinson	24- 7-6	2	1,491
Cotcha	14- 7-6	10	4,092
Hario	11- 7-6	4	1,035
Hollins	11- 7-6	1	307
Reiter-Foster:			
Bunyard	14- 7-6	4	1,560
Shaffer:			
Narcome	36- 8-6	2	175
Shell:			
Caesar	11- 7-6	1	5
Hotulke	23- 7-6	4	717
Jeffries	32- 8-7	1	....
Johnson	13- 7-6	3	3,086
Sinclair:			
Cosar	30- 8-6	3	1,400
Haney	12- 7-6	1	105
Tewee	14- 7-6	2	2,370
Sinclair & Kingwood:			
Pompey	24- 7-6	1	90
Skelly:			
Carl	14- 7-6	2	1,723
Slick:			
Chilcoat	9- 7-7	1	....
Reed	13- 7-6	2	1,690
Williams	15- 7-6	2	980
Wood	26- 7-6	2	345
Slick & Pine:			
Coker	1- 7-6	1	920
Snowden-McSweeney:			
Tiger	13- 7-6	3	747
Superior:			
Potulka	31- 8-6	1	....
Soketheche	1- 7-6	1	5
Texas:			
Brooks	25- 8-6	1	33
Coker	1- 7-6	3	240
Janey	11- 7-6	4	535
Texas & Independent:			
Hotulke	23- 7-6	4	1,760
Hotulke	22- 7-6	1	40
Tidal:			
House	1- 7-6	2	365
Johnson	1- 7-6	1	67
Twin States:			
Lowe	25- 8-6	1	125
Wigdon & Long:			
Jefferson	31- 7-6	1	30
Total		322	102,182

Maud Pool

Amerada:			
Gossland	8- 8-5	1	575
Gravel	1- 8-1	1	....
Hallum	1- 8-4	1	2,205
Amerada & Barnsdall:			
Wallace	17- 8-5	1	530
Amerada & Hull:			
Green	20- 8-5	1	955
Barnsdall:			
Coker	11- 8-5	1	2,035
Fife	14- 8-5	1	1,045
Darby:			
Ketchum	19- 8-5	1	264
Empire:			
Cluck	11- 8-5	1	....
Gypsy:			
Bourassa	7- 8-5	2	1,042
Coker	10- 8-5	1	....
Miller	18- 8-5	2	3,015
Independent:			
Harding	18- 8-5	2	3,795
I. T. I. O.:			
Simpson	10- 8-5	1	188
State	16- 8-5	1	....
Tully	10- 8-5	1	102
Laurel O. & G.:			
Billington	18- 8-5	1	1,020
Phillips et al:			
Hudson	19- 8-5	1	532
Prairie:			
Billington	11- 8-5	2	1,220
Campbell	18- 8-5	2	1,935
Mitchell	15- 8-5	1	125
Pure:			
Lindly	18- 8-5	3	2,470
C. Wiley	8- 8-5	3	2,775
Sinclair:			
Bellars	19- 8-5	5	3,310
Harjo	11- 8-5	1	1,032
Skelly & Margay:			
Lingenfelt	18- 8-5	1	3,395
Slick & White Eagle:			
Villines	20- 8-5	1	30
Sunray & Call Cul:			
Davis	19- 8-5	1	....
Texas:			
Calvin	7- 8-5	1	230
Tidal:			
Everett	18- 8-5	1	845
Wilcox:			
Smith	8- 8-5	1	935
Total		47	36,325

Mission Pool

Amerada:			
Rice	5- 8-6	1	....
Carter:			
Fuswa	18- 8-6	1	50
Micco	8- 8-6	2	50
Gypsy:			
Baby	6- 8-6	1	15
Barkus	6- 8-6	2	....
Dosar	7- 8-6	1	260
Hardy	7- 8-6	1	....
Mission	5- 8-6	1	....
Mosar	1- 8-5	1	....
Marland:			
Maines	7- 8-6	1	150
Mid-Kansas:			
Moore	7- 8-6	1	150
Shell & Marland:			
Herndon	7- 8-6	1	....
Shell & Papoose:			
Maines	7- 8-6	1	....
Twin States:			
Hayes	8- 8-6	1	50
Total		16	625

Bowlegs Pool

Amerada:			
Roscoe	15- 8-6	7	1,055
Atlantic:			
Baker	10- 8-6	4	360
Fleet	22- 8-6	3	200
Grayson	13- 8-6	4	540
Jones, A.	16- 8-6	2	....
Jones, C.	9- 8-6	1	140
Barnsdall:			
McNac	28- 8-6	1	21
Murrow	11- 8-6	4	344
Carter Oil:			
Bowlegs	15- 8-6	4	762
Burden	23- 8-6	2	232
Harjoche	14- 8-6	6	585
Hilly	23- 8-6	3	220
Jones	11- 8-6	4	555
Walker	15- 8-6	4	542
Wise	23- 8-6	11	1,585
Dixie:			
Culley	11- 8-6	1	90
Empire:			
Lacy	14- 8-6	6	442
Wise	23- 8-6	2	202
Gypsy:			
Bowlegs	22- 8-6	1	185
Bradley	9- 8-6	1	....
Cumsey	10- 8-6	4	700
Grayson	13- 8-6	4	310
Harjoche	10- 8-6	3	672
Jones	11- 8-6	1	7
Walker	16- 8-6	7	1,045
Wise	23- 8-6	2	212
I. T. I. O.:			
Barnett	24- 8-6	2	204
Barnett "B"	23- 8-6	1	64
Billington	22- 8-6	5	242
Bowlegs	22- 8-6	10	1,506
Davis	13- 8-6	4	484
Fay	13- 8-6	9	1,393
Goforth	15- 8-6	12	1,496
Livingstone	15- 8-6	10	1,759
Lizzie	13- 8-6	3	70
Walker	15- 8-6	8	834
Williams	12- 8-6	1	205
Willmott	16- 8-6	4	377
Work	24- 8-6	1	....
Youngblood	24- 8-6	2	112
Magnolia:			
Davis	13- 8-6	3	389
Davis, M.	13- 8-6	1	146
Hammond	10- 8-6	8	719
Rhodes	12- 8-6	6	428
Van Buskirk	9- 8-6	3	756
McCulloch:			
Bowlegs	22- 8-6	2	230
Mid-Continent:			
Baker	10- 8-6	4	365
Bowlegs	22- 8-6	1	2
Smith	12- 8-6	6	465
Minnehoma:			
Bowlegs	15- 8-6	4	245
Prairie:			
Gahagan	23- 8-6	3	410
Harber	10- 8-6	8	1,870
Jones	11- 8-6	4	320
Templeton	12- 8-6	5	1,840
Whitney	23- 8-6	4	620
Pure Oil:			
Reed	14- 8-6	14	2,515
Strother "D" 11 &	14- 8-6	4	423
Strother "F"	10- 8-6	7	2,245
Roxana:			
Taylor	16- 8-6	5	62
Shaffer:			
Lacy	14- 8-6	3	385
Sinclair:			
Cumsey	10- 8-6	4	545
Ellen	11- 8-6	6	847
Harjo	14- 8-6	3	977
Jones	9- 8-6	7	540
Taylor	10- 8-6	4	815
Taylor, W.	10- 8-6	3	669
Walker	22- 8-6	4	1,177
Slick:			
Jones	3- 8-6	1	135
Texas:			
Reed	14- 8-6	11	960
Tidal:			
Grayson	12- 8-6	4	350
Harjoche	10- 8-6	6	1,045
Twin States:			
Jones	11- 8-6	1	....
Total		312	42,241

Earlsboro Pool

Amerada:			
Anderson	15- 9-5	2	396
Cowden	4- 9-5	7	1,010
Rogers	3- 9-5	2	102
Atlantic & Gypsy:			
Delaware	13- 9-4	1	....
Atlantic & Sinclair:			
Foreman	18- 9-5	1	130
Barnsdall:			
Brown	10- 9-5	4	1,257
Bruner, F.	2- 9-5	2	111
Bruner, N.	1- 9-5	3	1,063
Cudjo	14- 9-5	1	23
Davis, D.	11- 9-5	3	400
Davis, J.	11- 9-5	4	1,356
Davis, M.	11- 9-5	2	44
Gibson	9- 9-5	8	1,212
Hern	15- 9-5	1	1
Ingram	1- 9-5	3	499
Pack, S.	10- 9-5	4	138
Peter	10- 9-5	4	92
Sango	1- 9-5	4	1,377
Sebalka	15- 9-5	1	210
Sullivan, H.	11- 9-5	1	3
Sull-Harjo	10- 9-5	2	33
Wasutke	12- 9-5	3	792
Burke-Greis:			
Wisner	6- 9-6	2	535
Burke & Red Bank:			
Mays	1- 9-5	1	1,350
Carter:			
Davis	13- 9-5	2	180
James	6- 9-6	4	2,690
Continental:			
Kays	2- 9-5	2	39
Spencer	12- 9-5	4	498

KEYSTONE COPPER STEEL

MALONEYS Hold The *Lighter Fractions*

Three exclusive features—our close-fitting "crimp" seams and joints, our special rubber packing and our Gaso cement — render MALONEYS vapor-tight to an exceptional degree and thus insure that they will hold the lighter and more valuable fractions of stored petroleum.

Rust-resisting Keystone Copper Steel sheets of heavy gauge—rigid steel channels reinforcing all seams—bolts of 90,000 pounds tensile strength—large cleaning out plates set flush with bottoms—Maloney special pearl gray paint—and the very best of valve and thief hatch equipment—are other factors in the superiority which has won leadership for MALONEYS.

The MALONEYS illustrated are one 3,000-Bbl., five 1,000-Bbl., and one 500-Bbl on the Japhet Production Company's Smith No. 4, Borger, Texas. Erected August, 1926.

"Alone in Quality"

MALONEY TANK MFG. COMPANY
Tulsa, Okla., U. S. A.

Distributors at All Principal Petroleum Points

Sizes: 12 to 10,000 Barrels

Packed in Steel-Bound Crates for Export

Howell Aluminum "4-in-1" Vacuum Pressure Valve and Thief-Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety.

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY
ALONE!

Company, farm—	Location	Wells	Prod.
Empire:			
Barker	12- 9-5	1	....
Edmondson	3- 9-5	3	140
Empire & Amerada:			
Bullock	8- 9-5	1	427
Gypsy:			
Bruner	10- 9-5	4	2,685
Carter, B.	11- 9-5	8	2,592
Earl	16- 9-5	1	21
Hunick	5- 9-5	2	2,002
Noble	12- 9-5	4	1,043
Peter	10- 9-5	2	157
Sango	1- 9-5	14	2,980
State	16- 9-5	4	595
Independent:			
Bruner	10- 9-5	3	390
Sullivan	10- 9-5	1	15
Knapp	8- 9-5	4	2,035
Independent-Margay:			
Gaines	11- 9-5	3	400
Magnolia:			
Bryant	9- 9-5	6	285
Cowden	4- 9-5	2	30
Dixon	12- 9-5	1	18
Edmondson	3- 9-5	1	5
Gilliam	13- 9-5	1	3,176
Holmsley	11- 9-5	7	17
Hyde	13- 9-5	1	444
Ingram	10- 9-5	1	15
Lena	10- 9-5	3	30
Moore	24- 9-5	1	112
Seay	12- 9-5	9	1,628
Simpson	10- 9-5	4	367
Sparks	11- 9-5	6	357
Sullivan	12- 9-5	3	60
Mid-Continent:			
McCumber	9- 9-5	7	75
Rogers	5- 9-5	1	905
Mid-Kansas:			
Anderson	14- 9-5	2	50
Phillips:			
Dunaway	14- 9-5	1	25
Prairie:			
Baker	24- 9-5	1	....
Davis	13- 9-5	3	1,035
Graham, C.	3- 9-5	2	20
Graham, O.	10- 9-5	4	935
Stidham	11- 9-5	10	1,250
Prairie & Whitney:			
Harjo	24- 9-5	1	60
Roxana:			
Bayless	17- 9-5	1	12
Hearn	13- 9-5	1	122
Spencer	12- 9-5	2	1,343
Shaffer:			
Clark	1- 9-5	2	130
McCoy	36-10-5	1	65
Sinclair:			
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	15
Sango	2- 9-5	4	2,125
Skelly:			
Mays	1- 9-5	3	2,685
Shepard	6- 9-6	3	2,173
Spencer	12- 9-5	1	....
Skelly & Atlantic:			
Cherry	6- 9-6	4	1,226
Lottie	6- 9-6	1	1,477
Slick:			
James	6- 9-6	2	1,187
Slick et al:			
Campbell	6- 9-6	4	3,772
Superior:			
Ingram	1- 9-5	1	780
Walker	2- 9-5	3	1,912
Texas:			
Anderson	2- 9-5	8	131
Brown	10- 9-5	8	240
James	6- 9-6	2	305
Rogers	5- 9-5	5	1,660
Wilmott	10- 9-5	7	95
Tidal:			
Walker	35-10-5	3	1,855
Watkins	9- 9-5	7	2,040
Twin States:			
Barker	12- 9-5	3	50
Hern	2- 9-5	4	....
Total		299	67,382

Production of Steel Was Good in January; Working on Gas Lines

By B. E. V. Luty

PITTSBURGH, Pa., Feb. 4. — January was quite a good month in steel production, but the mills ran largely on orders and specifications booked in December.

Steel ingot production in January may be estimated at somewhat above the 85 per cent rate officially reported for December. There was not as much increase as had been expected in some quarters and not as much as has usually occurred from December to January, but December was an unusually heavy month, record high for any December, and that impaired the chances of an increase.

It is safe to assert that prospects for steel tonnage are not as favorable, with one month of the new year gone, as they appeared to be around holiday time, when predictions were general that at least the first half of the new year would be very active, making a new record in tonnage production for a first half.

There has been no change, in the past month, in underlying conditions which would make circumstances less favorable. There is simply the condition previously existing, of high money rates tending to retard the inception of new projects. In the early predictions this factor was not sufficiently considered.

Fabricated structural steel lettings have been running at quite a moderate rate in the past few weeks. There was a change in this activity about October 1, lettings having been exceptionally heavy for five months previous, while since then they have been at a considerably lower rate.

In the past couple of weeks a good tonnage of rail buying has been reported, after several weeks of hardly any buying. Rail orders in the fortnight are: Nickel Plate, 22,800 tons; St. Paul, 50,000 tons; Southern Pacific, 7,200 tons; Rock Island, 50,000 tons; Burlington, 49,300 tons.

There has been additional freight car buying, and quite a quantity of inquiry is reported in the Chicago district. In the last three months about 30,000 cars have been ordered by United States and Canadian roads, which makes a rate of buying, at 120,000 cars a year, well above that in either of the last three years, but 30,000 cars alone does not represent much business and the question is whether the buying is going to continue.

The tubular goods market has been decidedly quiet, as a whole. Oil country goods demand generally has been light, but the recent advance in Pennsylvania oil has brought about more drilling projects in northern Pennsylvania and the pipe mills have been receiving good orders in that quarter. Several natural gas pipe line projects are being worked on. Standard or merchant pipe is moving much the same as formerly. Demand against the active building season has not developed yet and jobbers do not stock up for it at this time of year as they used to do. They can count upon prompt mill shipment whenever they order pipe.

The steel price structure, as a whole, does not look altogether as strong as it did a month ago, when on account of a few recent advances the common trade talk was that steel prices had an advancing trend, which really was generalizing a little too far. Now there is a little question in some lines whether prices are going to hold absolutely. The main change is in the aspect of bars, shapes and plates, which in December were quoted at 1.90 to 2 cents Pittsburgh, 1.90 cents being minimum while up to 2 cents was claimed on car load lots. Now the three products have settled down to the minimum at 1.90 cents, except that single car loads with decidedly mixed specifications would command above 1.90 cents. There has been a little shading in black and galvanized sheets but it is claimed there is less now.

Cold rolled strip makers have advanced the base price from 2.85 to 2.95 cents, as of February 1. This is really repetition of an advance attempted in November. With the recent advance in hot rolled strips the margin for cold rolling was considered too small.

DEATH OF HENRY C. HOPP

Henry C. Hopp, for years associated with the Malta-Connellsville Gas Co. in Malta, Ohio, was found dead in bed at the home of his son-in-law, Walter Abrams, in Bradford, Pa., on January 30. Mr. Hopp was born in 1861 in Malta, Ohio. He retired from active service in the natural gas business 10 years ago.

GEOLOGISTS ELECT OFFICERS

At a regular meeting of the Rocky Mountain Association of Petroleum Geologists, held recently the following officers were elected: President, Joseph S. Irwin, consulting geologist, Denver, Colo.; vice president, Charles S. Lavington, Continental Oil Co., Denver; vice president, J. Harlan Johnson, Colorado School of Mines, Golden, Colo.; secretary-treasurer, W. A. Waldschmidt, Midwest Refining Co., Denver.

Following the election of officers, Dr. E. U. von Buelow addressed the society on the "Latest Advances in Seismic Methods." Doctor von Buelow recently resigned as vice president and director of the North American Exploration Co., Inc., and has now opened offices as a consulting geologist and geophysicist in Denver.

602 MORE RIGS UP AND WELLS DRILLING THAN ONE YEAR AGO

Field operations in January in the states east of California resulted in fewer completions, but more oil wells and more initial production, than in December. There were 1,739 wells completed, a decline of 72, but the initial production was 531,227 bbls., an increase of 35,012 bbls. over the December total. Gas wells numbered 185, a decrease of 49 and dry holes 537, a decrease of 62. The number of oil wells completed in January was 1,017 while in December the number was 978, a difference of 39.

In the matter of new work a decline was noted when the results are compared with those of December. A total of 967 rigs up at the close of the January report was a gain of 74 over December but the number of wells drilling, 3,777 was 97 less than the December total, indicating a net decline of 23.

Compared with field conditions one year ago an increase of 602 is shown in the number of rigs and wells drilling in the fields east of California. In Oklahoma at the close of January, 1929, were 1,034 rigs and wells drilling as compared with 848 a year ago. Kansas showed an increase from 248 to 347 in the same period; North Central Texas, from 476 to 521; Southwest Texas, from 175 to 222; Arkansas, from 68 to 79; Montana, from 94 to 125; and Utah from 28 to 33. In the fields east of the Mississippi River the Eastern Field, (New York, Pennsylvania, southeastern Ohio and West Virginia) increased from 388 to 402 operations; Central Ohio, a large gas producer as well as an oil region, increased its field work from 69 a year ago to 233 at the close of January, 1929. Michigan increased from 13 operations to 151, and Kentucky from 154 to 182.

Fields showing a considerable letdown in field operations in the course of the 12 months were West Texas from 430 rigs and wells drilling to 378; Texas Panhandle from 171 to 155; North Louisiana from 171 to 117; Tennessee from 39 to 19; Indiana from 56 to 45; Illinois from 25 to 15. Not much change is noted in the East Texas, East Central Texas, Gulf Coast, Mississippi, New Mexico, and Wyoming fields.

SUMMARY OF ALL FIELDS
Wells Completed in January

	Comp.	Prod.	Dry	Gas
Eastern	329	1,826	29	53
Lima	8	92	2	0
Central Ohio	82	517	26	35
Michigan	37	6,630	15	7
Kentucky	108	1,446	45	2
Tennessee	1	...	1	0
Indiana	12	121	4	2
Illinois	16	511	5	1
Kansas	50	2,977	19	7
Oklahoma	302	107,386	113	21
North Central Tex.	286	14,789	131	9
East Central Tex.	10	...	10	0
East Texas	9	...	3	6
West Texas	112	315,065	19	0
Texas Panhandle	26	6,581	1	5
Gulf Coast	126	45,897	44	1
Southwest Texas	123	18,842	39	13
North Louisiana	32	218	11	17
Arkansas	28	4,122	9	5
Montana	26	2,508	3	0
Wyoming	4	651	1	0
Colorado	5	1,048	1	0
New Mexico	5	...	4	1
Utah	2	...	2	0
Total January	1,739	531,227	537	185
Total December	1,811	496,215	599	234
Difference	72	35,012	62	49

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Eastern	93	309	402
Lima	6	21	27
Central Ohio	78	155	233
Michigan	72	79	151
Kentucky	14	168	182
Tennessee	3	16	19
Alabama	0	7	7
Mississippi	7	23	30
Indiana	3	42	45
Illinois	3	12	15
Kansas	63	284	347
Oklahoma	169	865	1,034
North Central Texas	104	417	521
East Central Texas	5	14	19
East Texas	6	17	23
West Texas	75	303	378
Texas Panhandle	37	118	155
Gulf Coast	45	178	223
Southwest Texas	49	173	222
North Louisiana	34	83	117
Arkansas	20	59	79
Montana	20	105	125
Wyoming	28	144	172
Colorado	9	75	84
New Mexico	21	80	101
Utah	3	30	33
Total January	967	3,777	4,744
Total December	893	3,874	4,767
Difference	74	97	23

OKLAHOMA
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	6	145	1	1
Creek	30	1,637	10	4
Grady	6	...	1	1
Kay	12	35	9	2
Kiowa	11	83	9	..
Logan	9	11,598	3	..
Muskogee	12	370	4	1
Okfuskee	11	905	2	1
Okmulgee	20	611	11	2
Osage	24	1,558	10	..
Pontotoc	7	620	3	1
Pottawatomie	62	55,780	7	..
Seminole	41	25,522	12	1
Stephens	12	581	5	1
Wagoner	9	...	5	4
Miscellaneous	30	7,941	21	2
Total Jan.	302	107,386	113	21
Total Dec.	272	80,311	87	24
Difference	30	27,075	26	3

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Carter	8	21	29
Creek	20	75	95
Grady	1	12	13
Grant	1	9	10
Hughes	1	11	12
Kay	..	15	15
Kiowa	..	15	15
Logan	3	20	23
Muskogee	5	30	35
Oklahoma	5	9	14
Okfuskee	10	27	37
Okmulgee	11	24	35
Osage	12	36	48
Pawnee	2	7	9
Payne and Lincoln	4	16	20
Pontotoc	9	26	35
Pottawatomie	29	158	187
Seminole	26	232	258
Stephens	9	29	38
Wagoner	2	11	13
Miscellaneous	11	82	93
Total January	169	865	1,034
Total December	178	855	1,033
Difference	9	10	1

KANSAS FIELDS
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	13	1,900	3	0
Cowley	5	0	2	3
Elk	7	257	2	0
Greenwood	14	665	6	1
Miscellaneous	11	155	6	3
Total January	50	2,977	19	7
Total December	46	3,125	22	4
Difference	4	148	3	3

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Butler	10	21	31
Cowley	6	37	43
Elk	2	23	25
Ellis	2	15	17
Greenwood	3	25	28
McPherson	1	13	14
Marion	1	11	12
Russell	1	10	11
Sedgwick	22	29	51
Sumner	4	17	21
Woodson	1	10	11
Miscellaneous	10	73	83
Total January	63	284	347
Total December	74	245	319
Difference	11	39	28

NORTH LOUISIANA
Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rgs.	Dlg.	Ttl.
Bienville	2	0	1	1	1	0	1
Bossier	4	0	4	0	1	5	6
Caddo	6	60	2	1	4	19	23
Catahoula	0	0	0	0	0	1	1
Claiborne	0	0	0	0	0	4	4
DeSoto	1	0	1	0	4	7	11
E. Carroll	0	0	0	0	0	1	1
Franklin	0	0	0	0	0	1	1
Grant	0	0	0	0	1	0	1
LaSalle	2	0	2	0	1	3	4
Lincoln	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Morehouse	2	0	0	2	4	5	9
Natchitoches	0	0	0	0	0	1	1
Ouachita	5	0	0	5	4	9	13
Rapides	0	0	0	0	0	2	2
Red River	0	0	0	0	1	2	3
Richland	2	0	0	2	6	5	11
Sabine	0	0	0	0	1	3	4
Tensas	0	0	0	0	0	1	1
Union	1	0	0	1	1	5	6
Webster	7	158	1	5	5	7	12
Total Jan.	32	218	11	17	34	83	117
Total Dec.	41	218	22	15	19	78	97
Difference	9	0	11	2	15	5	20

*Gas production: Bienville, 8,000,000 feet; Caddo, 4,000,000 feet; Morehouse, 12,000,000 feet; Ouachita, 22,500,000 feet; Richland, 50,000,000 feet; Union, 3,500,000 feet; Webster, 40,662,000 feet; total, 149,662,000 feet.

ARKANSAS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rgs.	Dlg.	Ttl.
Ashley	1	0	1	0	1	2	3
Bradley	0	0	0	0	0	1	1
Calhoun	0	0	0	0	0	1	1
Chicot	0	0	0	0	0	2	2
Clark	0	0	0	0	0	1	1
Clay	0	0	0	0	0	1	1
Columbia	0	0	0	0	0	4	4
Drew	0	0	0	0	1	0	1
Faulkner	0	0	0	0	0	1	1
Franklin	0	0	0	0	1	0	1
Garland	0	0	0	0	0	2	2
Jackson	0	0	0	0	0	1	1
Johnson	0	0	0	0	0	3	3
Little River	0	0	0	0	0	1	1
Logan	0	0	0	0	0	2	2
Miller	0	0	0	0	0	1	1
Nevada	2	29	0	0	1	3	4
Ouachita	2	50	0	0	4	7	11

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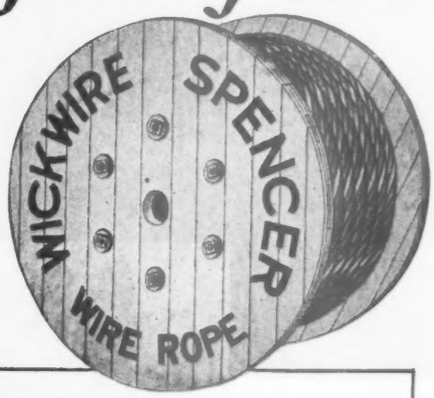

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tests better than A.P.I. specifications

Pulaski	0	0	0	0	0	1	1
Union	23	4,043	8	5	12	25	37
Total Jan.	28	4,122	9	5	20	59	79
Total Dec.	22	3,805	11	0	19	59	78
Difference	6	317	2	5	1	0	1

*Gas production: Union County, 187,300,000 feet.

KENTUCKY-TENNESSEE

KENTUCKY

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	4	8	1	0	0	4	4
Allen	7	29	4	0	0	6	6
Barren	1	10	0	0	0	4	4
Ohio	34	699	14	0	3	54	57
Daviess	33	590	14	0	2	41	43
Hancock	2	2	1	0	1	5	6
McLean	1	20	0	0	0	4	4
Henderson	1	25	0	0	0	9	9
Webster	0	0	0	0	0	1	1
Muhlenburg	0	0	0	0	0	2	2
Breckenridge	1	0	1	0	0	2	2
Butler	0	0	0	0	1	3	4
Hopkins	2	0	2	0	0	8	8
Meade	0	0	0	0	1	1	2
Caldwell	0	0	0	0	0	1	1
Trigg	0	0	0	0	0	1	1
Christian	0	0	0	0	3	2	5
Hardin	1	0	1	0	1	1	2
Wayne	4	2	3	0	0	4	4
Powell	1	6	0	0	0	1	1
Estill	10	20	2	0	0	3	3
Lee-Owsley	1	0	0	1	1	1	2
Wolfe	0	0	0	0	0	1	1
Lawrence-Johnson	1	15	0	0	0	1	1
Johnson-Magoffin	1	20	0	0	1	4	5
Floyd-Knott	0	0	0	0	0	1	1
Clay	1	0	1	0	0	1	1
Knox	1	0	1	0	0	1	1
Rowan	1	0	0	1	0	0	0
Menifee	0	0	0	0	0	1	1
Total Jan.	108	1,446	45	2	14	168	182
Total Dec.	128	1,990	44	6	17	190	207
Difference	20	544	1	4	3	22	25

TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clay	1	0	1	0	2	12	14
Jackson	0	0	0	0	0	2	2
Marshall	0	0	0	0	1	0	1
Decatur	0	0	0	0	0	2	2
Total Jan.	1	0	1	0	3	16	19
Total Dec.	1	0	0	1	4	15	19
Difference	0	0	1	1	1	1	0

MISSISSIPPI

Summary of Rigs and Wells Drilling

	Rigs	Dlg.	Ttl.
Alcorn	0	1	1
Calhoun	0	1	1
Chickasaw	0	1	1
Claiborne	0	2	2
Hinds	3	1	4
Itawamba	0	1	1
Jackson	0	1	1
Jasper	0	1	1
Lauderdale	1	0	1
Lee	0	1	1
Monroe	2	7	9
Rankin	1	1	2
Sharkey	0	1	1
Simpson	0	1	1
Stone	0	1	1
Washington	0	1	1
Webster	0	1	1
Total Jan.	7	23	30
Total Dec.	3	21	24
Difference	4	2	6

ALABAMA

Summary of Rigs and Wells Drilling

	Rigs	Dlg.	Ttl.
Houston	0	1	1
Lawrence	0	2	2
Marion	0	1	1
Washington	0	3	3
Total Jan.	0	7	7
Total Dec.	0	6	6
Difference	0	1	1

SOUTHWEST TEXAS

Summary of Field Operations

	Comp	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Mirando	37	4,023	9	6	17	31	48
Joe Bruner	47	11,957	7	1	12	40	52
Luling Field	2	30	0	0	0	2	2
Agua Dulce Field	1	0	0	1	2	2	4
Refugio Field	7	300	1	4	4	12	16
Yoast Field	6	2,532	1	0	0	7	7
Miscellaneous	23	0	21	1	14	79	93
Ttl. Jan.	123	18,842	39	13	49	173	222
Ttl. Dec.	88	7,856	47	15	34	184	218
Difference	35	10,986	8	2	15	11	4

Initial gas production for district, 479,000,000 feet.

TEXAS PANHANDLE

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Cochran	1	0	1	0
Gray	9	3,818	0	0
Hutchinson	7	350	0	1
Moore	5	2,433	0	0
Wheeler	4	0	0	4
Total Jan.	26	6,581	1	5
Total Dec.	31	2,826	9	4
Difference	5	3,755	8	1

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	S.D.	Ttl.
Carson	5	13	1	19
Gray	11	37	9	57
Hutchinson	7	18	3	28
Moore	1	5	2	8
Wheeler	9	11	3	23
Miscellaneous counties	4	10	6	20
Total Jan.	37	94	24	165
Total Dec.	35	80	36	151
Difference	2	14	12	4

WEST TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Borden	1		1	0
Concho	1		1	0
Crane	3	422	0	3
Crockett	1		1	0
Fisher	1	208	1	0
Glasscock	2	25	1	1
Howard	19	17,963	2	17
Jones	15	3,569	2	13
Mitchell	1		1	0
Pecos	10	8,777	2	8
Irion	1		1	0
Reagan	6	3,102	0	6
Sutton	1		1	0
Stonewall	1		1	0
Scurry	1		1	0
Tom Green	1		1	0
Taylor	2		2	0
Upton	1	150	0	1
Ward	1	125	0	1
Winkler	43	280,724	1	42
Total Jan.	112	315,065	19	93
Total Dec.	85	324,727	25	60
Difference	27	9,662	6	33

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	S.D.	Ttl.
Crane	0	4	0	4
Crockett	0	0	2	2
Fisher	3	3	2	8
Glasscock	3	6	1	10
Howard	15	48	5	68
Jones	9	17	5	31
Mitchell	2	3	0	5
Pecos	12	18	10	40
Reagan	3	5	1	9
Runnels	0	3	0	3
Upton	0	3	0	3
Ward	1	3	3	7
Winkler	17	59	14	90
Misc. Counties	10	35	42	87
Total Jan.	75	207	96	378
Total Dec.	60	258	92	410
Difference	15	51	4	32

NORTH CENTRAL TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Archer	29	346	18	9
Brown	37	412	19	1
Callahan	29	173	19	9
Clay	1	0	1	0
Coleman	21	442	13	1
Comanche	3	85	0	0
Cooke	7	261	1	6
Eastland	8	28	6	1
Erath	1	0	0	1
Foard	1	0	1	0
Grayson	1	0	0	1
Haskell	2	65	1	0
Montague	4	71	1	0
McCulloch	1	0	1	0
Jack	4	485	2	0
Palo Pinto	3	50	1	1
Throckmorton	1	0	1	0
Shackelford	24	3,675	7	0
Stephens	8	2	4	3
Wichita	36	4,180	8	0
Wilbarger	37	4,121	10	0
Young	28	393	17	0
Total Jan.	286	14,789	131	9
Total Dec.	322	14,642	145	13
Difference	36	147	14	4

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	S.D.	Ttl.
Archer	3	22	8	39
Brown	3	22	29	54
Callahan	4	3	4	11
Coleman	14	25	10	49
Cooke	7	7	8	22
Clay	0	0	7	7
Eastland	4	22	10	36
Erath	2	9	2	13
Haskell	2	2	5	7
Jack	9	6	6	21
Montague	4	1	5	10
Palo Pinto	2	6	5	13
Shackelford	3	12	0	15
Stephens	2	16	1	19
Throckmorton	2	1	1	4
Wichita	20	36	4	60
Wilbarger	10	61	13	84
Young	7	21	8	36
Misc. counties	4	7	8	19
Total Jan.	104	281	136	521
Total Dec.	97	279	141	517
Difference	7	2	5	4

GULF COAST

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Barbers Hill	3	2,040	1	0	1	4	5
Batson	3	23	0	0	0	3	3
Big Creek	5	5,280	0	0	0	3	3
Blue Ridge	8	2,760	1	0	1	8	9
Boling	4	725	2	0	4	6	10
Damon M'nd.	1	0	1	0	0	1	1
DeWalt	2	3,100	0	0	1	3	4
Goose Creek	1	15	0	0	0	4	4
High Island	1	0	1	0	0	2	2
Hull	7	1,415	1	1	1	6	7
Humble	1	5,280	0	0	0	4	4
Liberty	21	9,099	2	0	6	15	21
Markham	0	0	0	0	0	1	1
Nash	1	0	1	0	0	3	3
Orange	1	0	1	0	0	1	1
Orchard	1	0	1	0	0	1	1
Pierce Jnct.	7	4,080	1	0	2	9	11
Raccoon B'nd.	3	1,500	1	0	3	6	9
Saratoga	1	80	0	0	1	0	1
Sour Lake	1	0	1	0	0	1	1
Spindletop	9	3,325	1	0	3	12	15
Miscellaneous	14	2,189	10	0	6	31	37
Ttl. Jan.	95	40,911	26	1	29	126	155
Ttl. Dec.	102	36,094	43	1	12	126	138
Difference	7	4,817	16	0	17	0	17

SOUTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Anse LaButte	2	0	2	0	2	0	2
B'yu. Bouillon	4	550	2	0	2	2	4
Edgerly	3	825	0	0	0	1	1
Hackberry	4	1,920	2	0	2	7	9
Jennings	4	116	2	0	2	6	8
Lockport	1	280	0	0	1	7	8
Sorrento	1	0	1	0	1	0	1
Starks	2	0	2	0	0	3	3

Sulphur	3	1,200	2	0	2	4	6
Sweet Lake	0	0	0	0	0	2	2
Vinton	3	20	2	0	0	5	5
Miscellaneous	4	75	3	0	4	15	19
Total Jan.	31	4,986	15	0	16	52	68
Total Dec.	27	7,423	13	0	2	53	55
Difference	4	2,437	5	0	14	1	13
Ttl. Gulf C.	126	45,897	44	1	45	178	223
Total Dec.	129	43,517	55	1	14	179	193
Difference	3	2,380	11	0	31	1	30

EAST CENTRAL TEXAS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Anderson	5	0	5	0	2	4	6
Cherokee	2	0	2	0	1	0	1
Falls	0	0	0	0	0	2	2
Freestone	1	0	0	0	0	1	1
Limestone	1	0	1	0	0	0	1
Henderson	0	0	0	0	0	1	1
Leon	0	0	0	0	0	2	2
Milam	0	0	0	0	0	1	1
Navarro	0	0	0	0	1	1	2
Smith	1	0	1	0	0	0	0
Van Zandt	0	0	0	0	1	1	2
Total Jan.	10	0	10	0	5	14	19
Total Dec.	9	3,342	6	0	1	17	18
Difference	1	3,342	4	0	4	3	1

EAST TEXAS
Summary of Field Operations

	Com.	Prd.	Dry	Gas*	Rgs.	Dg.	Ttl.
Bowie	0	0	0	0	0	1	1
Camp	0	0	0	0	0	1	1
Cass	0	0	0	0	0	1	1
Harrison	1	0	0	0	1	1	2
Panola	7	0	2	5	5	8	13
Red River	1	0	1	0	0	3	3
Shelby	0	0	0	0	0	2	2
Total Jan.	9	0	3	6	6	17	23
Total Dec.	5	0	2	3	4	21	25
Difference	4	0	1	3	2	4	2

*Gas production: Harrison, 1,000,000 feet; Panola, 67,266,000 feet; total, 68,266,000 feet.

WYOMING
Summary of Field Operations

Dist. or County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Salt Creek	1	31	0	0	3	4	7
Albany	1	0	1	0	0	0	0
Big Horn	0	0	0	0	1	11	12
Carbon	1	120	0	0	0	13	13
Fremont	0	0	0	0	3	9	12
Hot Springs	0	0	0	0	1	3	4
Johnson	0	0	0	0	0	4	4
Lincoln	0	0	0	0	1	7	8
Natrona (ex. Salt Creek)	0	0	0	0	4	3	7
Park	1	500	0	0	3	33	36
Sweetwater	0	0	0	0	2	10	12
Sublet	0	0	0	0	1	23	24
Uinta	0	0	0	0	5	11	16
Miscellaneous	0	0	0	0	4	13	17
Total Jan.	4	651	1	0	28	144	172
Total Dec.	17	1,152	4	4	33	141	174
Difference	13	501	3	4	5	3	2

MONTANA
Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Cat Creek	0	0	0	0	0	3	3
Evin Sunb't.	10	810	3	0	10	13	23
Pondera	16	1,698	0	0	6	19	25
Miscel.	0	0	0	0	4	70	74
Total Jan.	26	2,508	3	0	20	105	125
Total Dec.	45	1,970	14	6	22	117	139
Difference	19	538	11	6	2	12	14

COLORADO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Bent	0	0	0	0	0	2	2
Fremont	2	35	1	0	1	15	16
Larimer	1	756	0	0	1	6	7
Las Animas	0	0	0	0	1	2	3
Moffat	0	0	0	0	4	8	12
Routt	2	257	0	0	2	6	8
Miscellaneous	0	0	0	0	0	36	36
Total Jan.	5	1,048	1	0	9	75	84
Total Dec.	11	253	7	0	12	77	89
Difference	6	795	6	0	3	2	5

UTAH
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Box Elder	0	0	0	0	0	3	3
Grand	0	0	0	0	0	8	8
San Juan	0	0	0	0	1	2	3
Uinta	1	0	1	0	1	5	6
Utah	1	0	1	0	0	1	1
Miscellaneous	0	0	0	0	1	11	12
Total Jan.	2	0	2	0	3	30	33
Total Dec.	2	0	1	1	3	32	35
Difference	0	0	1	1	0	2	2

NEW MEXICO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Chaves	0	0	0	0	2	3	5
De Baca	0	0	0	0	0	3	3
Eddy	0	0	0	0	2	7	9
Guadalupe	1	0	1	0	0	1	1
Lea	3	0	2	1	7	22	29
McKinley	0	0	0	0	0	9	9
Roosevelt	0	0	0	0	3	0	3
San Juan	1	0	1	0	4	18	22
San Miguel	0	0	0	0	2	2	4
Torrance	0	0	0	0	1	5	6
Miscellaneous	0	0	0	0	0	10	10
Total Jan.	5	0	4	1	21	80	101
Total Dec.	9	700	7	1	19	79	98
Difference	4	700	3	0	2	1	3

MICHIGAN FIELDS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Muskegon	31	6,630	10	6	59	47	106
Isabelle	0	0	0	0	3	3	6
Midland	0	0	0	0	0	4	4
Mason	1	0	0	0	1	0	2	2
Newaygo	0	0	0	0	1	2	3
Shiawassee	0	0	0	0	0	1	1
Crawford	0	0	0	0	1	0	1
Montcalm	0	0	0	0	0	1	1
Sunfiac	0	0	0	0	0	1	1
St. Clair	4	0	4	0	0	0	0
Van Buren	0	0	0	0	2	1	3
Alpena	0	0	0	0	0	1	1
Livingstone	0	0	0	0	0	2	2
Lake	0	0	0	0	0	1	1
Allegan	0	0	0	0	1	0	1
Tuscola	0	0	0	0	0	1	1
Huron	0	0	0	0	0	1	1
Manistee	1	0	1	0	0	0	0
Cass	0	0	0	0	0	1	1
Mecosta	0	0	0	0	0	1	1
Kent	0	0	0	0	2	3	5
Ottawa	0	0	0	0	1	3	4
Oceana	0	0	0	0	2	3	5
Total Jan.	37	6,630	15	7	72	79	151
Total Dec.	31	3,235	5	4	61	74	135
Difference	6	3,395	10	3	11	5	16

INDIANA FIELDS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Adams	0	0	0	0	0	1	1
Gibson	7	66	2	1	1	5	6
Pike	1	0	0	1	0	0	0
Daviess	0	0	0	0	0	2	2
Vigo	1	30	0	0	0	0	0
Sullivan	0	0	0	0	0	4	4
Spenser	2	25	1	0	1	8	9
Dubois	0	0	0	0	0	2	2
Warrick	0	0	0	0	0	2	2
Knox	0	0	0	0	0	1	1
Benton	0	0	0	0	0	1	1
Fountain	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	1	1
Bartholomew	0	0	0	0	0	1	1
Miami	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	1	1
Wabash	0	0	0	0	0	1	1
Greene	0	0	0	0	0	3	3
Henry	0	0	0	0	0	1	1
Crawford	0	0	0	0	0	1	1
Perry	0	0	0	0	1	1	2
Posey	0	0	0	0	0	1	1
Vanderbury	1	0	1	0	0	1	1
Lagrange	0	0	0	0	0	1	1
Hancock	0	0	0	0	0	1	1
Total Jan.	12	121	4	2	3	42	45
Total Dec.	19	154	8	2	4	47	51
Difference	7	33	4	0	1	5	6

ILLINOIS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	1	0	1	0	0	3	3
Crawford	6	46	1	1	1	5	6
Lawrence	2	95	0	0	0	2	2
Wabash	6	265	3	0	2	1	3
St. Clair	1	105	0	0	0	1	1
Total Jan.	16	511	5	1	3	12	15
Total Dec.	14	98	8	0	3	11	14
Difference	2	413	3	1	0	1	1

LIMA FIELDS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	1	0	1	0	3	5	8
Hancock	2	45	0	0	0	2	2
Allen	0	0	0	0	2	2	4
Auglaize	0	0	0	0	0	1	1
Mercer	0	0	0	0	0	3	3
Seneca	4	41	1	1	0	4	4
Lucas	0	0	0	0	1	1	2
Ottawa	1	6	0	0	0	0	0
Hardin	0	0	0	0	0	1	1
Darke	0	0	0	0	0	1	1
Huron	0	0	0	0	0	1	1
Total Jan.	8	92	2	1	6	21	27
Total Dec.	16	107	7	1	2	24	26
Difference	8	15	5	0	4	3	1

CENTRAL OHIO FIELDS
Summary of Field Operations

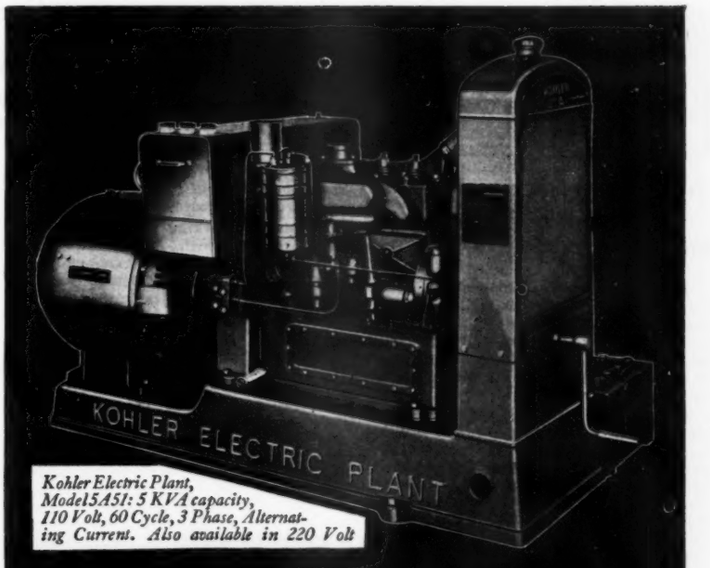
	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	11	45	5	4	8	12	20
Medina	2	0	2	0	0	6	6
Lorain	2	0	0	2	4	2	6
Wayne	5	0	1	4	7	7	14
Holmes	7	2	1	5	4	5	9
Cuyahoga	0	0	0	0	1	2	3
Richland	0	0	0	0	0	4	4
Knox	2	0	2	0	1	10	11
Coshocton	2	65	0	0	2	5	7
Summitt	5	0	2	3	1	17	18
Licking	12	114	2	1	10	16	26
Muskingum	4	271	1	1	6	11	17
Athens	13	5	3	8	8	20	28
Meigs	6	12	2	1	5	13	18
Jackson	4	0	2	2	11	8	19
Vinton	0	0	0	0	1	2	3
Stark	1	0	0	1	1	0	1
Lawrence	1	0	1	0	0	2	2
Pickaway	0	0	0	0	0	1	1
Gallia	0	0	0	0	0	1	1
Tuscarawas	0	0	0	0	0	1	1
Fairfield	1	0	1	1	1	3	4
Guernsey	4	0	2	2	7	6	13
Total Jan.	82	517	26	35	78	155	233
Total Dec.	126	759	32	56	72	161	233
Difference	44	242	6	21	6	6	0

EASTERN FIELDS
Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Allegany	14	26	0	0
Bradford	148	235	0	0
Middle Field	4	12	0	0
Venango-Clarion	14	27	0	2
Butler-Armstrong	6	6	0	1
S. W. Pennsylvania	13	155	2	5
West Virginia	69	251	14	35
S. E. Ohio	61	1,114	13	10
Total January	329	1,826	29	53
Total December	342	1,428	31	73
Difference	13	398	2	20

Summary of Work Under Way

	Rigs	Drlg.	Ttl.
Allegany	0	17	17
Bradford	23	59	82
Middle Field	0	5	5
Venango-Clarion	2	16	18
Butler-Armstrong	3	14	17
S. W. Pennsylvania	4	25	29
West Virginia	38	103	141
S. E. Ohio	23	70	93
Total January	93	309	402
Total December	103	355	458
Difference	10	46	56



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Discussions of Engineering Problems

EDITED BY R. VAN A. MILLS, PETROLEUM ENGINEERING EDITOR

AUTOMATIC FLOWING OF SMALL WELLS

Discussed by C. E. Earle, Fort Worth, Tex.

I have read your article entitled "Automatic Flowing of Small Wells," appearing in The Oil and Gas Journal of November 8, 1928. In this, your statement and proof that the differential pressure P_2 at the booster hole is constant seem to me to be wrong.

Refer to your diagram, Figure 1, and add the designation Z for the height in feet that the liquid in the trap stands above the foot of the flow string. It is evident that the pressure exerted by the liquid standing in the trap outside the flow string supports a column of liquid of equal height Z inside the flow string.

In your calculations you state that $P_1 = \frac{X}{2.66} + \frac{Y}{2.66}$ whereas, according to the conditions set forth in the above paragraph,

$$P_1 = \frac{X}{2.66} + \frac{Y}{2.66} - \frac{Z}{2.66}$$

Then by substituting in the equation

$$P_2 = P_1 - \frac{Y}{2.66}$$

we have

$$P_2 = \frac{X}{2.66} + \frac{Y}{2.66} - \frac{Z}{2.66} - \frac{Y}{2.66}$$

or

$$P_2 = \frac{X}{2.66} - \frac{Z}{2.66}$$

Z is variable, therefore P_2 is a variable. The changes in P_2 are limited by the variations in the height of the column Z.

Remarks by Editor

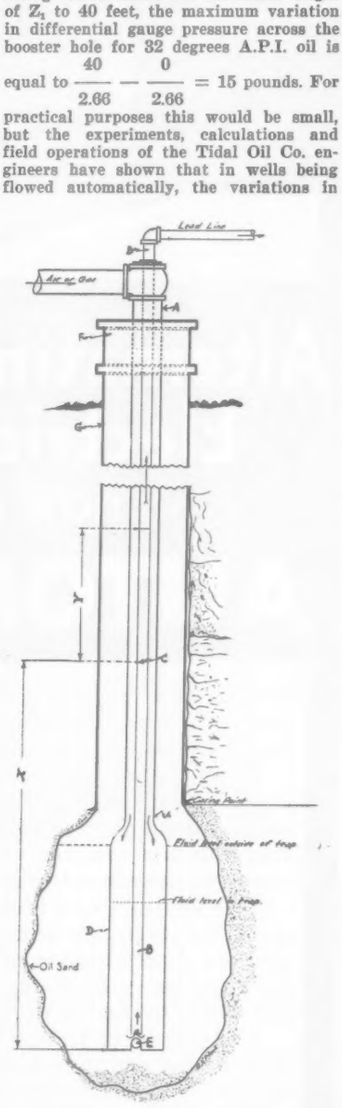
Mr. Earle's point is well taken and the editor stands corrected. There is no alibi or excuse for the error, but, fortunately, in its application to the automatic flowing of small wells through small tubing, the correction is of more theoretical than practical importance. This is true because the depression of the fluid in the 4-inch reservoir trap amounts to only 1 foot for a rise of 22.25 feet in the three-fourths-inch flow string. The relation is inversely proportional to the cross-sectional areas inside the respective pipes. It is apparent that the depression of the column Z in the 4-inch trap would become greater and consequently the error would become greater for larger sizes of flow strings, but for the conditions in the problem under discussion the variations in differential pressure across the booster hole in the three-fourths-inch flow string are so small as to be negligible. The engineers of the Tidal Oil Co. recognized this fact and have worked in accordance with it.

In considering the problem under discussion let it be understood that for convenience in making the necessary calculations, a static condition in the system is assumed. Also let it be understood that these calculations do not hold true after the well starts to flow. Under this static hypothesis the heads of the fluid columns are considered as if they assume their positions instantaneously under the applied pressures before the fluid standing in the flow string above the booster hole has time to become aerated. Then for every increase in pressure applied there is a variation in the differential pressure across the booster hole equal to

$$\frac{Z_1}{2.66} - \frac{Z_2}{2.66}$$

where Z_1 represents the height in feet at which the fluid stands above the bottom of the flow string for a certain pressure and Z_2 represents the height in feet at which the depressed fluid stands above the bottom of the flow string under some greater imposed pressure.

Within the working range of a 40-foot trap equipped with Mr. Small's pilot string which limits the maximum height of Z_1 to 40 feet, the maximum variation in differential gauge pressure across the booster hole for 32 degrees A.P.I. oil is equal to $\frac{40}{2.66} - \frac{0}{2.66} = 15$ pounds. For practical purposes this would be small, but the experiments, calculations and field operations of the Tidal Oil Co. engineers have shown that in wells being flowed automatically, the variations in differential pressure across the booster hole (under the static conditions assumed) are actually much less than the 15 pounds maximum.



Diagrammatic sketch of trap equipment for flowing small oil wells. The parts of the equipment are designated as follows: A, pressure string; B, flow string; C, booster hole; D, reservoir trap; E, standing valve; F, casinghead; G, casing; the column Z extending from the bottom of the flow string to the fluid level in the trap is not designated.

By applying Mr. Earle's correction to a well 500 feet deep in which the booster hole is 60 feet above the trap, and with a pressure of 50 pounds gauge being applied, the differential pressure across the booster hole figures out to 24.75 pounds per square inch. In the same well, with 100 pounds gauge pressure being applied, the differential pressure across the booster hole figures out to 28.86 pounds gauge pressure. Again in the same well, with 145 pounds gauge pressure being applied, the differential pressure across the booster hole figures out to 28.8 pounds per square inch. Thus the increase in differential pressure across the booster hole when the imposed pressure is doubled from 50 to 100 pounds gauge is only 2.11 pounds per square inch. When the pressure applied is raised from 50 to 145 pounds gauge, the differential pressure across the booster hole is increased only 4.05 pounds per square inch. In practical field work with a booster hole only one-thirty-second inch in diameter, and where ideal conditions can be only approximated, these slight variations in differential pressure across the booster hole are negligible.

The error involved in calculating the differential pressure across the booster hole, rather than the variation in this pressure, is somewhat greater. By assuming that this differential pressure is equal to $\frac{X}{2.66}$ the error for an applied pressure of 50 pounds in the 500-foot well under consideration amounts to 12.6 pounds. For an applied pressure of 100 pounds the error amounts to 10.72; and for a pressure of 145 pounds the error amounts to 8.43 pounds. As the applied pressure is increased the error diminishes because $\frac{Z}{2.66}$ becomes smaller.

Although Mr. Earle's correction is absolutely sound, it appears from the excellent results thus far obtained in the field that the Tidal Oil Co. engineers are justified in neglecting the slight errors involved under the exceptional conditions with which they are working. In the ordinary use of a booster hole or booster collar, the error pointed out by Mr. Earle might be serious. It is gratifying that questions of this kind do not get by our technical readers without discussion. It would be gratifying if more engineers would enter these discussions so as to give others the benefit of their knowledge and experience.

CROOKED HOLE PROBLEM

Discussed by G. T. Chupp, Ploesti, Rumania

I have been reading the discussions on crooked holes appearing in The Oil and Gas Journal and find them interesting. Having given considerable thought to this subject, I will add these few lines to its discussion.

I do not agree with the theory that hydraulicking can have anything to do with the cause of crooked holes. A loose, soft formation will cave to some extent until it is properly plastered with mud, but the principal effect of the mud should be to hold the formation up until it is plastered or mudded. The mud should wash out only the formation that would naturally cave but it should not wash out large cavities even if considerable volumes of mud flow at high velocity through the hole. This is directly contrary to the theory that the mud washes out large cavities by hydraulicking.

Deflection Down Dip

It must be admitted, however, that cavities resulting from caving may have much to do with the cause of crooked holes. If there is a cavity just above a dipping stratum that is hard, the drill stem is more free to bend at an angle to that hard stratum. This condition will cause the bit to turn while setting at an angle to the dipping formation and possibly to cut unevenly and to drift down the dip in the direction of least resistance.

The opinion that the bit will incline toward a right angle to a hard dipping stratum is, I believe, erroneous. If we have a hard stratum that dips at 25 degrees it would be difficult to imagine that the bit would tend to deflect toward a right angle to the hard bed. For example, if we take a small steel bit with a long stem and attempt to drill a hole straight down through a soft material and into a hard limestone that dips sharply, and if at the same time the bit be forced until the shank is bent similar to the way a string of drill pipe would bend in actual drilling, I believe that the bit will be found to drift in a down dip direction. When we have an accurate device to tell us the direction that a crooked hole deviates with relation to the dip I believe that down dip deviations will predominate.

Rotary Muds

Having drilled for two years in the Seminole Field I would like to offer a suggestion which I believe may aid in drilling straighter holes in that locality and which would also apply in any other district. In the Seminole Field we seldom had good drilling mud until a depth of 1,800 to 2,000 feet was reached. Many crooked holes have probably resulted from this fact because large cavities from caving, which allow the drill pipe and stem to flex, would not exist if the holes were started with good mud. I do not consider that the weight of the mud is so important in walling a hole as the character or quality of the mud. For example, a clean mud free of sand and coarse grit has a higher viscosity and is better than mud of equal weight that is laden with sand and cuttings. I have found that if the rotary mud is carried as clean as possible at approximately 9.5 pounds per gallon it will often have a higher viscosity than heavier muds and will most effectively remove the cuttings and allow them to settle out in the slush pond. Mud of this kind will also penetrate the walls to some extent which is important in getting a good wall.

Larger Drill Pipe

Another suggestion is to run heavy 8-inch drill pipe on the bottom of the string of 6-inch pipe. This will serve the double purpose of holding the bit straight and will give the bit more weight without bending the pipe. I should think that about 100 to 1,000 feet of 8-inch could be used down to a depth of 2,000 feet, thereafter reducing the ratio as desired. There is, however, some danger of getting the 8-inch pipe stuck in an 11-inch hole unless the mud is kept in proper condition. The question of proper muds to use in rotary drilling is of special importance in the crooked hole problem.

Remarks by Editor

This discussion of the crooked hole problem by a practical driller in Rumania emphasizes the need for facts with which to replace opinions and theories. Mr. Chupp has made some valuable suggestions and has emphasized the importance of using proper rotary muds but until more facts are known and properly analyzed, the many differences of opinion upon the crooked hole problem will persist. In the meantime one man's opinion is about as good as another's. It is hoped that those having facts bearing upon the points raised in Mr. Chupp's discussion will contribute them through these columns.

Before any satisfactory solution of the crooked hole problem can be reached it will be necessary to answer the following questions through the collection and analysis of facts.

1. Are crooked rotary holes caused primarily by excessive weight on the drill bit?
2. Does flexure of the drill pipe play an important part?
3. Are straighter rotary holes drilled with automatic weight controls than without them?
4. Do weight indicators aid in drilling straighter holes?
5. Are hydraulicking and caving of importance in causing crooked holes?
6. Does the care with which a hole

(Continued on Page 136)

CENTRAL WEST

(Continued from Page 71)

in the same condition as in the Lima Field of Ohio, and little can be done as the cables and sand lines get covered with ice, making the work hazardous.

In Gibson County, Washington Township, the Big Four Oil & Gas Co.'s test in the northeast corner of the C. T. Sloan farm, in the SW quarter Section 18, found a pay between the depths of 1,880-85 feet good for 10 bbls. under pump in 24 hours. The Washington Oil Syndicate's second test in the northwest corner of the Laura Dillon farm, in the NE quarter Section 18, produced an initial of 5 bbls. under pump at from 1,273-76 feet. Fred Hillis is drilling on the R. F. Lindy farm, same township. The Roxana Petroleum Corp. has a rig in for a test on the Ralph Ongett farm, Section 32, Columbia Township, same county. The Texana Oil Co. is drilling on the William Volkman farm, Section 32, Center Township, same county.

D. D. and H. O. Jones are reported drilling on the John Clauser, Section 28, Blue Creek Township, Adams County, in the northeastern part of the State.

ILLINOIS

So far as development work has gone in Sugar Loaf Township, in St. Clair County, it looks as though a new field of importance is in the making, as the Ohio Oil Co. has drilled in two very nice wells in this township, and a well by Petty & Olenburg, in the northwest Survey No. 429, same township, is in the sand showing for around 12 bbls. initial. This is a fair well for the depth in which the oil is found, only a little over 600 feet, the second well going to 636 feet. This development is to the southeast of East St. Louis and in the southwestern part of the State. Another area that looks inviting is in Saline County, in the southeastern part of Illinois, where a large acreage has been taken under leases by several parties, including Edward R. List of Manatee, Fla., who drilled the dry hole some time ago south of Mount Vernon, in Jefferson County, Illinois. Mr. List has for years been identified with the oil industry in Ohio, Indiana, Illinois, Kentucky and Tennessee.

The Ohio Oil Co. made a good strike in its No. 4 in the northeast corner of the Logan Vandermark farm, in the NW quarter Section 34, Dennison Township, Lawrence County. This well was drilled to a total depth of 1,745 feet and plugged back to the Kirkwood sand at 1,650 feet, where it made an initial production of 80 bbls.

In Wabash Township, Wabash County, the Adams Corner Oil Co.'s test, 600 feet from the north line and 200 feet from the east line of the L. G. Stillwell in the SE quarter Section 12, was dry at 1,410 feet. The Mount Carmel Oil Co. got one of the same kind at No. 8 on the F. M. Leak farm, Section 1, in the Allendale Field. Phipps and others are starting a test on the Clyde King, Section 35, and McColpin Brothers and others are starting a second test on the Cora B. Kogan farm, Section 2.

Phipps, Blosser and others are drilling No. 3 on the C. E. Davis, Section 24, Southwest Township, Crawford County. W. C. McBride, Inc., is drilling No. 3, R. E. Deverick, Section 2, Johnson Township, Clark County.

KENTUCKY-TENNESSEE

(Continued from Page 68)

the Taffey area, is reported good for 5 bbls. initial.

In the Weller Pool, James C. Ellis is reported to have found a dry hole in No. 11 on the C. R. Keith farm, and a 15-bbl. initial producer at No. 10 same farm.

Lyle, French and others' Nos. 6 and 7 on the J. W. Whittaker farm, in the Willow Pool, near Bell's Run, were both dry holes, according to late reports.

Carpenter and others' No. 1 on the Tom Howard farm, also in the Willow Pool, is credited with 30 bbls. initial production.

In the Sunnydale Field, the Wood Oil Co., Inc., set a string of 403 feet of casing, got sand at from 422 to 437 feet and went to a total depth of 450 feet and shot with 60 quarts No. 5 on the J. C. Ralph 21 acres, resulting in a 30-bbl. initial production. Same company's No. 7 on the R. A. Duke 200 acres, at a total depth of 436 feet, found a 40-bbl. producer. In this well a string of 387 feet of casing was set and sand from 411 to 428 feet with a 90-quart shot.

Daviess County Wells

In the Utica Field of Daviess County, Smith, Randolph and others' No. 6, on the Oscar Wells, is reported as showing for 20 bbls., with No. 7 drilling and No. 8 location made.

In the Brown Pool, also in the Utica area, the Petroleum company's Nos. 9 and 10 on the E. L. Burns farm produced 25 and 30 bbls. initially.

The Ohio Oil Co.'s No. 1 on the Frank Higdon farm, according to reports, is showing for 35 bbls. initial.

Other Completions

In the Scottsville Field of Allen County, Gainesville district, D. D. Defenbaugh's No. 3 on the L. Beam farm was dry at 277 feet, and Harley & Coatsworth's second test on the D. Welch 10-acres, also dry at 225 feet. These two dusters are in the northwestern part of the county, while in the southwest portion, W. K. White and Son, of Hollywood, Calif., found what is reported good for 25 bbls. in No. 10 on the T. W. Meader farm, in the Mt. Aerial district at 350 feet. This property has been a consistent producer for a long period.

In the Glasgow Field of Barren County, the Sampson Oil Co.'s No. 16 on the Browning farm is reported at 10 bbls. initial.

In Hopkins County, Dexter Pratt and others are reported to have a dry hole on the Red Brown farm, and William Higgins' No. 1 on an unknown farm, is also said to be worthless so far as production is concerned.

Field Pickups

The well drilled by L. C. Young on the A. Tucker farm, adjoining the Gilbert Jolly farm, near Buford, several miles west of the Weller or Ambrose Pool, was called a dry hole when drilled some months ago, but is now reported considerably filled with oil. This is in Ohio County, not far removed from the Daviess-McLean County lines. M. M. Wheeler and Fred Botts are drilling not far from the Jolly farm, and on the Edward Crow farm, and if it proves a commercial well that area will get a nice drilling play.

George Trout and others are drilling on the Ellis Bartlett, southwest of the Ambrose Pool, in Ohio County.

The well of the Ohio Oil Co. on the J. B. Jackson farm, on the Wear Road, about 3 miles from Greenville, in Muhlenburg County, has not lived up to its showing and being too light to pump, will no doubt be abandoned and another test made in the vicinity.

Edward R. List, of Manatee, Florida, is drilling a test on the Minnie Cox farm, 4 miles east of Madisonville, in Hopkins County, having moved his material from the dry hole drilled near Mt. Vernon, in Jefferson County, Illinois, to the Kentucky location.

TENNESSEE

The Chester County Oil Co.'s No. 1 Montgomery, on the J. A. Montgomery farm, Decatur County, is at 625 feet. The Standard Oil Co. of Louisiana is drilling a test at over 100 feet.

EASTERN FIELDS

(Continued from Page 68)

A. H. Heisey Co. has a good producer on the S. L. Burrier farm. In Section 20, Jefferson Township, Knox County, the East Ohio Gas Co. has a small gasser at a second test on the M. Strong farm. In Section 10, Brown Township, the Ohio Fuel Supply Co. has a fair gasser at No. 3 on the J. A. Reed farm.

In McElroy district, Tyler County, West Virginia, the South Penn Oil Co. completed in the Big Injun sand No. 6 on the B. A. Swiger farm. It is good for about 5 bbls. a day. Near Grantsville, Godfrey L. Cabot has cleaned out and shot No. 7 on the W. T. Rafferty farm, increasing its production from 2 to 4 bbls. a day.

In Smithfield district, Roane County, the King Oil & Gas Co.'s second test on the Persley Looney farm is a gasser in the Salt sand. In Washington district, Calhoun County, the Pure Oil Co.'s test on the A. A. McClain farm is a gasser in the same formation. In Sherman district, W. H. Bickels' test on the G. C. Burroughs farm is a gasser in the Big Injun sand.

Gilmer County

In Center district, Gilmer County, the Chartiers Oil Co. has a Salt sand gasser at No. 9 on the Baptist Missionary farm. In Lee district, Calhoun County, F. F. McIntosh & Co. have a Big Injun sand gasser on the John I. McCoy farm. In the same district, the United Carbon Co.'s second test on the C. H. and J. J. Davis farm is a gasser in the Big Injun sand. In Clay district, Monongalia County, the Consolidated Oil Co. has a gasser in the Bayard sand on the W. W. Eddy farm.

Near Mount Zion Church, on the left fork of Dutchmans Run, Murphy district, Ritchie County, the South Penn Oil Co. has completed No. 10 on the Haught Lambert farm. It is good for 2 bbls. a day in the Salt sand. On Bull Fork of Tanners Creek, DeKalb district, Gilmer County, Park Bowser has a 3,000,000-foot gas well in the Big Injun sand at No. 3 on the Robert Mitchell farm. On Tanners Creek, same district, the Gainer Farm Oil & Gas Co. has drilled through the Big Injun sand No. 4 on the Harriett Gainer farm. It is dry in the Big Injun sand. A light show of oil was developed in the Maxon sand and it will be shot and tested in that formation. If it does not prove a paying producer it will be abandoned.

Production Increased

In DeKalb district, Gilmer County, the South Penn Oil Co. cleaned out No. 5 on the W. F. and E. Weaver farm and No. 7 on the B. F. Weaver farm. The production of both was materially increased. H. J. Summers cleaned out No. 1 on the George McKee farm, increasing its production to 3 bbls. a day.

On the north fork of Hughes River, Grant district, Ritchie County, the Lincoln Oil Co. has completed in the Big Injun sand No. 3 on the T. R. Swisher farm. It is a very light pumper. In Union district, Lincoln County, the United Fuel Gas Co.'s test on the John W. Thomas farm is a gasser in the Berea grit. In Duval district, the same company's test on the Lewis heirs' farm is a gasser in the same formation. In Jefferson district, G. T. Ray has a gasser in the same formation at a second test on the R. E. Vickers farm.

In Duval district, the United Fuel Gas Co. has completed three gassers on the Horse Creek Land & Mining Co.'s tract. The gas is found in the Berea grit. In Carroll district, Meabon & Huffman's test on the Ambrose Plumley farm is a gasser in the same formation. In Jefferson district, Earl Cameron's No. 3 on the Golden Stone farm is a gasser. In Union district, the United Fuel Gas Co. has a Berea grit gasser on the G. W. Oxley farm.

In McComas district, Cabell County, Cummings Brothers have a gasser in the Gordon sand on the Amanda Keyser farm. In Scott district, Boone County, the Cameron Oil & Gas Co.'s No. 11 on the George P. Alderson farm is a gasser. In the same district, the United Fuel Gas Co. has a gasser on the J. F. Thompson farm.

In Mannington district, Marion County, the J. L. Moore Oil & Gas Co.'s test on the R. J. Floyd farm is dry in all sands. In Murphy district, Ritchie County, the Hope Natural Gas Co. has a 10-bbl. pumper on the S. C. Collins farm. In Clay district the Bachelor & Co. test on the Jacob McCullough farm is a gasser in the Big Injun sand.

Drilling Test Wells

In McClellan district, Doddridge County, Godfrey L. Cabot has started to drill on the Mary G. Smith farm. In Center and Sherman districts Calhoun County, the Hope Natural Gas Co. has rigs up on the Alice B. Bennett, Dora Johnson, Clinton Shook, Joseph Knotts and William Lamb farms. In Sheridan district, Godfrey L. Cabot made a location on the L. F. Morrison farm. In Geary district, Roane County, the United Fuel Gas Co. has started to drill on the Brown, Swan & Goshorn tract. In Smithfield district, the same company is rigging up on the J. G. Keffer farm. In Mannington district, Marion County, J. J. Allen is hauling rig material to a location on the H. C. Thorn farm. In Walker district, Wood County, the Coplin Farm Oil Co. has a rig completed on the J. W. Coplin farm.

In Sand Hill district, Marshall County, the Myers Oil & Gas Co. is rigging up on the C. M. Strickland farm. In Liberty district, Meinerman and others have made a location on the H. W. Ernest farm. In the same district, the Manufacturers Light & Heat Co. is due in the Big Injun sand on the E. & M. Allman farm. In Geary district, Roane County, the United Fuel Gas Co. is rigging up on the W. W. Ogden farm. Same company has made a location on the John C. Halcom farm.

On Devil Hole Creek, Grant district, Ritchie County, G. L. Watson has the rig completed for a second test on the Jacob Shrader farm. In the same district and on the same stream, Woodford & Goff have started to drill on the Newton Layfield farm.

CANADIAN FIELDS

(Continued from Page 53)

permanent organization. Dalhousie Oil Co. was incorporated some years ago with a capitalization of 3,000,000 no-par shares, to take over and continue the operations of the old Southern Alberta Oils, Ltd. and allied companies. Under the temporary arrangement, Royalite Oil Co. financed and handled the drilling of a specified number of wells, in exchange for 51 per cent of the Dalhousie stock. The Royalite fulfilled its undertaking with the completion of Dalhousie's Nos. 5 and 6 producers; and the 51 per cent of the stock is now to be turned over to the Royalite Oil Co. Under the proposed permanent organization, the Royalite interests are to be represented by three and the Dalhousie interests by two directors. A statement to the shareholders, signed by Alex Hannah, the president, shows that the company has $118,317.03 cash balance, without making any provision for taxes or depreciation. Receipts to December 31, 1928, included more than $50,000 from crude oil sales, $54,551 from crude naphtha; $25,378 from transfer fees; miscellaneous receipts bringing the total to $142,007.60. Disbursements, mainly for well operations, amounted to $23,690.57. The company has three producing wells; Dalhousie's No. 1 (the old Southern Alberta flowing well) producing crude naphtha from the deep lime, and Dalhousie's Nos. 5 and 6, producing light crude from the Fernie shale horizon. Dalhousie's No. 7 was located some months ago in LSD 10, Section 13-20-3w5, but has not yet spudded in. The company holds 550,000 shares in the Midwest Oil Co. which have been subject to litigation.

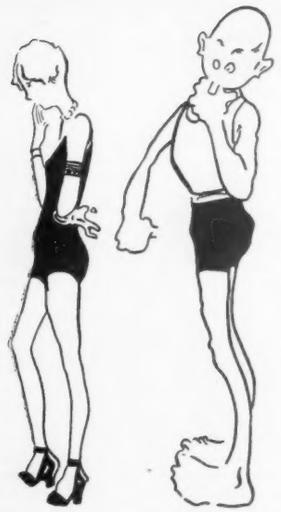
Home Oil Co.'s shareholders held their annual meeting at Vancouver, British Columbia, all directors being re-elected, with one new director, R. H. B. Kerr of Victoria, British Columbia. Officers are: President, W. C. Shelly; vice president, Col. Nelson Spencer; secretary-treasurer, G. S. Harrison.

Drilling operations are likely to be commenced this season by the Midwest Oil Co., a recent judgment of the appellate division of the supreme court of Alberta dismissing an action brought some time ago.

Okalta Operations

Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is reported still frozen in the deep lime at 5,040 feet. The well averaged around 365 bbls. a day of crude naphtha in December, and had just completed installing two separators when the production was shut off. It is expected the well will ultimately thaw itself out, but if it does not it will be cleaned out with the diamond drill to restore production.

McLeod Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, after drilling past the



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lost drill rods for about 17 feet lost a bit in the hole. Fishing operations are being continued. The test is down 4,862 feet. McLeod's No. 4, same LSD, is drilling below 4,300 feet, or about 570 feet in the deep lime.

Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is cleaning out a bridge preparatory to making a production test. Three successive shots of nitroglycerin were used some weeks ago, and materially increased the wet gas flow from the deep lime, but the resulting debris blocked the hole about 500 feet from the bottom. The hole has been cleared to below 5,600 feet, or about 40 feet from the bottom, and with a little more drilling will be in shape to determine the production. It may be drilled deeper into the lime.

Spooner Oils' No. 2, Section 24-20-3w5, has started drilling into the lime with the diamond drill at 5,080 feet.

Regent Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, has finished testing the wet gas production in the deep lime at 3,845 feet. The well has been flowing by heads, but the test indicated a recovery of between 30 and 40 bbls. a day of crude naphtha, so it will be drilled further into the lime.

Mayland Oil Co., LSD 10, Section 17-19-2w5, at 4,812 feet has been making between 50 and 70 bbls. a day of light crude from the upper horizon of the Fernie shales. The test is being continued to the Dalhousie sand, about 250 feet lower, where a larger production of light crude is anticipated.

Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w4, has been cleared to the bottom at 3,550 feet, and is cementing casing in the top of the lime at this depth. A 4¾-inch hole will be carried into the lime. New McDougall-Segur Oil Co.'s No. 2 deep test, same LSD, is reported making new hole at 4,545 feet, after fishing a lost bailer.

Model Oils' No. 1, LSD 8, Section 22-20-3w5, is drilling and carrying down 10-inch casing at 3,320 feet, after encountering a fair show of light crude in the Dakota horizon.

Alberta Production

Revised figures of Alberta oil production for 1928 show an aggregate output of 489,531 bbls. The Turner Valley is credited with 410,623 bbls. of crude naphtha and 70,734 bbls. of light crude. Wainwright heavy crude amounted to 8,174 bbls., the December production taking a considerable spurt with 1,295 bbls. The 1927 production amounted to 332,123 bbls. The total gas production for Alberta amounted to 14,198,959,000 feet.

The Turner Valley production, for marketing purposes, is now divided into three categories. The deep lime production includes two grades of crude naphtha, clear naphtha selling at $3 95 and discolored naphtha at $3.50. Light crude from the Fernie shales and Dakota sands is worth $3.10.

The monthly production, including the two grades of crude naphtha in one, follows, in barrels:

Month—	Naphtha 60 deg. up	Light crude 30 to 60 deg.	Heavy crude under 30	Total
January	27,638	5,596	494	33,728
February	26,180	5,441	611	32,232
March	32,485	5,414	942	38,841
April	29,949	4,825	972	35,746
May	37,657	5,819	832	44,308
June	39,060	7,530	841	47,440
July	36,775	8,456	770	46,001
August	39,798	6,532	121	46,451
September	33,975	5,682	179	39,836
October	27,529	4,811	423	32,763
November	34,768	5,327	694	40,789
December	44,800	5,307	1,295	51,396
Total	410,614	70,680	8,174	489,531

British Dominion Oil Development Corp.'s No. 2, LSD 6, Section 12-20-3w5, is in the second McDougall-Segur sand at 3,542 feet, and installing a new drilling line. Bailing operations indicate a production of around 20 bbls. of 55 gravity crude from the first sand. Okalta Oils' No. 3, LSD 9, Section 1-20-3w5, is drilling at 2,520 feet after straightening a crooked hole. United Oils' No. 2, LSD 15, Section 34-19-3w5, is drilling in the lower Fernie shales at 5,288 feet with the hole in good shape. East Crest Oil Co.'s No. 1, LSD 5-6, Section 16-19-2w5, is drilling in the lower Fernies at 3,410 feet after installing new cable and sand line, and is close to the deep lime which will be got rather high in this part of the south end of the field.

Southern Foothills

In the southern foothills, Imperial Oils' No. 1 Highwood, LSD 3, Section 36-18-3w5, is drilling at 4,050 feet. In the Jumping Pound district west of Calgary, Imperial's No. 1 Bow River, LSD 11, Section 31-24-4w5, is at 1,066 feet and running 15½-inch casing.

In the Skiff Field, southern Alberta, Imperial-Devenish's No. 3, offsetting No. 1 discovery well, is drilling at 2,328 feet, and logging perfectly with the discovery well, which got heavy crude production at 3,090 feet. The drillers are working with an outdoor temperature of 32 below.

In the Turner Valley Field, Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is drilling at 2,850 feet. Freehold Oil Corp., SW Section 3-21-3w5, is cleaning out hole preparatory to resuming at 2,540 feet. Freeman-Lundy Syndicate, LSD 10, Section 1-20-3w5, is drilling at 320 feet.

Hudson's Bay

Although no official announcement has yet been made, reports are in circulation of numerous drilling activities on the part of the Hudson's Bay-Marland Oil Co. for this year. It is understood the exhaustive preliminary survey started some years ago was definitely completed this fall, and that on the basis of information secured, a number of locations will be made in Alberta this spring. It is reported one deep test will be undertaken near Champion, and another test may be drilled in the Lomond district. It is also reported Joe Maughan is core drilling for the Hudson's Bay-Marland company at Keho, 5½ miles northeast of Nobleford, preparatory to a commercial test. All these locations are in previously untested areas. Hudson's Bay-Marland's No. 1 deep test was started last season in the Viking Field, and will this season likely be carried a considerable depth below the Viking sand, where a large gas production was struck last year.

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is drilling below 2,100 feet. Elbow Oil Co., financed by British capital, is erecting derrick for its No. 1 test in LSD 11, Section 35-22-4w5, and has a complete cable tool outfit on the ground.

In the Aldersyde district, south of Calgary, Ranchmen's Gas & Oil Co., LSD 16, Section 13-20-29w4, is drilling around 2,870 feet.

In the Wainwright Field, Fabyan Petroleums' No. 1, LSD 8, Section 24-45-5w4, will resume early in the spring. Casing has been cemented in the top of an oil sand at 1,840 feet, and this will be tested, with possibilities of deeper drilling. Fabyan Petroleums is planning to drill additional tests this season, and may undertake a deep test in the Fabyan portion of the Wainwright Field. The annual meeting was held recently at Vancouver, British Columbia, when R. E. Williams was re-elected president and managing director. Annual meeting of the Sasko-Wainwright Oil & Gas Co. was held at Saskatoon recently, when the board of directors was re-elected. The company has a test on top of the sand in LSD 1, Section 19-45-6w4.

In the Ribstone Field, Ribstone Oils' No. 2, LSD 5, Section 2-47-1w4, is making new hole below 1,080 feet. Meridian Oils, LSD 1, Section 16-45-1w4, will wait for milder weather before drilling through the cement into the gas sand, the 1,500-foot water line to the boilers being frozen.

Shareholders of the Rose Oil Co., operating in the Montana fields, held a meeting at Calgary recently, when it was decided to wind up the company. Sale of the company's assets in the Kevin-Sunburst Field, consisting of 80 acres and 11 producing wells, was ratified. The Rose Oil Co. owns approximately 1,000 acres of leases in the Turner Valley Field, and a 40-acre tract in this field north of the East Crest Oil Co.'s well has been optioned to a new company now being organized, payment to be made on the basis of one and one-fourth shares of the new company for every share of Rose stock issued. In the winding up process, Rose Oil Co. shareholders will receive a cash payment of $1 a share, other payments being left to the liquidator. Officers of the Rose Oil Co. are: President, A. M. McDermid; secretary, J. Bowron; directors, L. L. Smith, J. Whitelaw and F. Rockefellow.

In Ontario, the Suburban Oil & Gas Syndicate, drilling 2 miles west of Acton, has struck a small gas flow at 2,050 feet. Drilling is being continued.

URGE CO-ORDINATION IN NATURAL GAS RESEARCH

(Continued from Page 75)

mately half of its present cost per 1,000 cubic feet.

Assuming, for illustrative purposes, that the company could sell gas on a 100 per cent load factor basis instead of 50 per cent and that the output cost remained approximately the same, 30 cents per 1,000, then the price it would receive for gas would be only 75 cents per 1,000, to obtain the same relative revenue above actual output cost of gas. The fixed part of the cost of gas would only be approximately 45 cents per 1,000 cubic feet instead of 90 cents.

If the load factor were increased to 75 per cent and the total cost represented by the 90 cents per 1,000 cubic feet of the $1.20 over the output cost of 30 cents per 1,000 cubic feet, then the fixed portion would be 60 cents, or the average sale price 90 cents, instead of $1.20 per 1,000 cubic feet.

These figures are merely presented to indicate how necessary it is to increase the use of the investment more hours per year without increasing maximum demands to a point requiring more investment and, therefore, greater cost. To increase the load factor will put any public utility on a much better basis to compete for the higher priced and more profitable business.

Cost of Other Fuel

I believe I should proceed a little further and attempt to present an example, which will show the cost of other fuel compared to gas and which proves to me, at least, that every branch of the gas industry must undertake its specific research problem in order to obtain the maximum development.

The average calorific value of manufactured gas distributed by gas public utilities is approximately 550,000 B.t.u. per million cubic feet. Assume the output cost of gas to be 50 cents per thousand cubic feet, that competitive coal would cost $4 per net ton and a calorific value of 13,000 B.t.u.'s per pound; oil at $1.50 per barrel of 42 gallons and 5,000,000 B.t.u.'s per barrel; electricity at one-half cent per kilowatt hour on the switchboard; natural gas 950,000 B.t.u.'s per thousand cubic feet and costs at a point to be delivered into the distribution system 20 cents per thousand. The average theoretical cost compared with manufactured gas of 550,000 B.t.u.'s per thousand would be as follows:

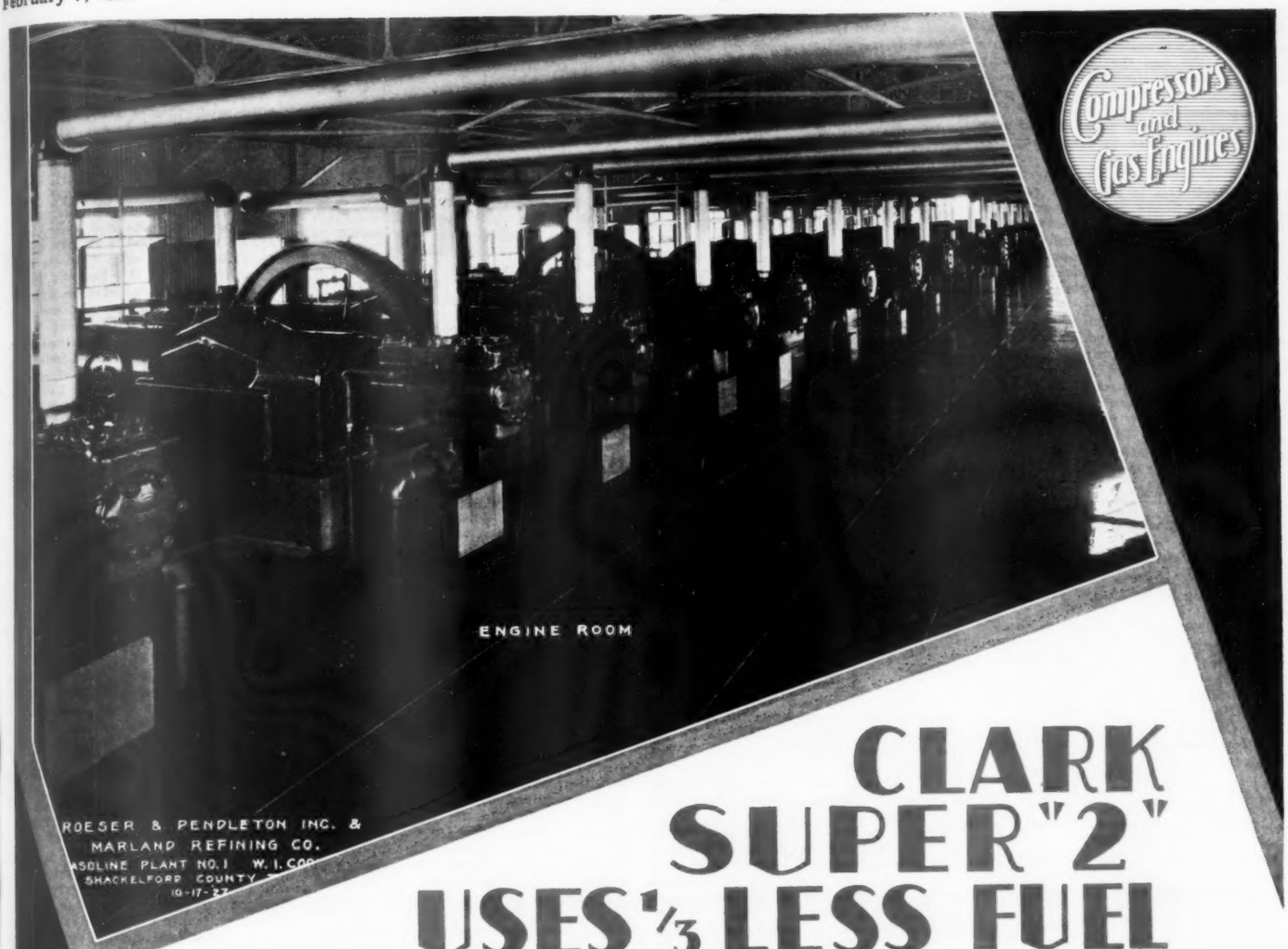
Manufactured gas	550,000 B.t.u.'s.	$0.50
Coal 46 pounds	550,000 B.t.u.'s.	.494
Oil 4¼ gallons	550,000 B.t.u.'s.	.347
Natural gas 580 cu. ft.	550,000 B.t.u.'s.	.316
Electricity 161 KWH.	550,000 B.t.u.'s.	.805

Based on purely theoretical 100 per cent thermal efficiency of use at these purely and only output costs and not considering any collateral advantages, electricity would be entirely out of the competitive field and manufactured gas would also be out, but nevertheless would be 2.68 times better off than electricity. We know from experience that the purely theoretical figures do not apply—that both gas and electricity are extensively sold at many times the competitive prices mentioned in these purely theoretical output costs for purposes where the other fuel could be used.

Competitive Figures

It is a research problem to ascertain what competitive figures gas must be sold for in order to take the business and how to do it to the greatest extent. The present basis of outpot cost of gas and the present average investments and other costs preclude the gas industry from taking on all the business which it is believed rightfully belongs to it.

Looking over the theoretical figures of



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the competitive costs of fuel for the same number of heat units, one can readily appreciate the fact that both electricity and gas must do extensive research work in order to reduce the actual output costs of its product with less loss of heat in the manufacture and must also reduce its overhead expense in every way, investment and otherwise.

Summing up, it is plain that it is a most difficult task to pick those research problems which are most important to the gas industry. From my viewpoint I think the most intensive study should be given to sales of gas, improving the load factor, etc. The technical research must go along with the other problems and as aggressively, but as we have our present investment, production methods and costs, distribution and other factors controlling the present ultimate cost to the consumer, I believe we should concentrate as much as possible to improve the uses of gas based on our present conditions and then keep working diligently and aggressively to improve the fundamental conditions, affecting all costs of heat delivered to the prospective and present customers.

LOUISIANA-ARKANSAS

(Continued from Page 46)

Simplex Oil Co.'s No. 7 Youree-Randolph, Section 13-20-15, is drilling at 860 feet.

Pine Island—Dixie Oil Co.'s No. 91 Dillon, Section 14-21-15, is underreaming 6¼-inch, total depth 3,630 feet. C. H. French cemented 60 feet of 10-inch and is drilling at 130 feet on No. 4 Muslow, 1,120 feet north and 1,648 feet west SE cor. Section 31-21-15. Nos. 1, 2 and 3 on this lease were drilled by Woodley Petroleum Co.

Claiborne Parish

Haynesville—Smitherman & McDonald are arranging to bail No. 1 Miller, Section 17-23-8, total depth 4,335 feet.

LaSalle Parish

Little Creek—H. L. Hunt is arranging to swab No. 5 Urania, Section 2-9-1e, through 3-inch tubing, total depth 1,271 feet. Montagu Oil Co. has rig up for No. 7 Zenoria, Section 11-9-1e.

Urania—Ayers Brothers' No. 6 Tremont, Section 30-10-2e, cored sand showing water at 1,575 feet and is shut down for orders.

Monroe District

Morehouse Parish—Amalgamated Carbon Co. is drilling No. 3 Fairly, Section 55-20-4, at 1,750 feet. Natural Gas Producing Co. of Louisiana's No. 22 Crossett, Section 35-21-4, is bailing to test, total depth 2,203 feet; No. 14 Tensas, Section 4-22-4, is drilling at 150 feet. Southern Carbon Co.'s No. 52 fee, Section 15-20-4, is drilling at 1,430 feet, and No. 2 Miles, Section 1-20-4, has rig up to drill; No. 8 Tensas, Section 2-20-4, is drilling at 1,720 feet. Stovall Drilling Co. cemented 8-inch at 876 feet and is drilling at 1,000 feet on No. 2 Etheridge, Section 22-20-4.

Ouachita Parish—Hatcher & Evans' No. 8 Hatcher, Section 21-19-4, is drilling at 1,600 feet. Magnolia Petroleum Co. is drilling shale at 1,860 feet on No. 2 Morrison, Section 2-19-4, and cemented 10¾-inch at 873 feet on No. 1 United States. Ouachita Natural Gas Co. cemented 6-inch at 2,088 feet on No. 5 Lieber, Section 4-19-4. Palmer Corp.'s No. 5 fee, Section 24-10-4, is in sand rock at 1,700 feet. United Carbon Co. cemented 6-inch at 2,119 feet on No. 3 fee, Section 6-19-5.

Union Parish—Industrial Gas Co. has derrick up for No. 1 Hill, Section 9-20-3. United Carbon Co.'s No. 1 Nichols, Section 6-20-3, is drilling at 1,612 feet.

Red River Parish

Bull Bayou—Odell & Lawton are drilling No. 4 Richardson, Section 25-13-11, at 2,550 feet.

Richland Parish

Carbon Gas Co. has derrick up for No. 1 M. L. McCoy, Section 8-16-6, and has set 12-inch at 205 feet on No. 1 W. T. Sartor, Section 16-16-6. Community Oil & Gas Co.'s No. 1 Boise, Section 33-16-6, cemented 6-inch at 2,281 feet. Magnolia Petroleum Co.'s No. 1 D. R. Sartor, Section 21-16-6, is drilling at 2,190 feet; No. 2 J. Sartor, Section 16-16-6, was dry again on drill stem tests at 2,562-75 feet, where it has a fishing job for core barrel. Ouachita Natural Gas Co. is drilling No. 5 Pardue, Section 5-15-6, at 2,300 feet.

Webster Parish

Cotton Valley Syndicate's No. 19 Hope, Section 24-21-10, is in anhydrite at 4,429 feet. Magnolia Petroleum Co.'s No. 4 Ira Cox, Section 23-21-10, set 10¾-inch at 3,500 feet; No. 6 Marshall, Section 21-21-10, has rig up to drill, and No. 1 McCook & Hibbler, Section 22-21-10, is drilling lime at 3,962 feet.

Sarepta and Shongaloo—Magnolia Petroleum Co. is drilling No. 3 H.M. Branton, Section 6-22-9, at 1,830 feet; No. 1 Cook in Section 2-22-11 is a derrick; No. 1 Denman, Section 1-22-11, is drilling chalk at 2,258 feet.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp.'s No. 1 McPherson, Section 10-10-24, set 10-inch at 1,555 feet; No. 2 Bynum, Section 12-10-24, is drilling at 1,060 feet.

Nevada County

Humble Oil & Refining Co. set 42 feet of 10-inch on No. 5-B Graves, Section 1-14-21, and No. 2 Hain in the same section is drilling at 2,716 feet.

Ouachita County

Smackover—Gulf Refining Co. cemented 4½-inch at 2,540 feet on No. 9-A Goodwin, Section 5-16-15. Phillips Petroleum Co.'s No. 20 Joyce, Section 33-15-15, is drilling in the red beds at 3,130 feet. Simms Oil Co. is in hard lime at 2,560 feet on No. 1 Hildebrandt, Section 33-15-15.

Union County

El Dorado—Standard Oil Co. made location 90 feet north and 215 feet east SW cor. SW NW Section 31-17-15, for No. 5 Burns. Gulf Refining Co.'s No. 2 Gaddy, Section 30-17-14, is drilling at 2,423 feet, and No. 1 Woodley, Section 6-18-14, is fishing for drill stem, total depth 3,385 feet.

Champagnolle—H. L. Hunt cemented 6⅝-inch at 3,034 feet on No. 4 Gregory, Section 10-17-14, total depth 3,056 feet, and has shut down No. 6 J. D. Gregory, Section 15-17-14, at 3,401 feet. E. C. Johnson's No. 3 E. F. Gregory, Section 10-17-14, is waiting on standard rig to pump with 2,000 feet of fluid in the hole from 14 feet of sand, total depth 2,783 feet. Lion Oil Refining Co. milled out of casing at 2,845 feet and is drilling No. 5 Rowland, Section 15-17-14, at 2,860 feet; No. 5 Union Sawmill, Section 7-17-13, is drilling red gumbo at 4,075 feet.

Magnolia Petroleum Co. is arranging to deepen No. 2 Alice Gregory, Section 15-17-14, completed last month as dry gasser at 2,822 feet; No. 3 tested salt water at 2,625 feet and is coring at 2,638 feet. Ohio Oil Co. made location 330 feet south and west NE cor. SW NW Section 7-17-13, for No. 1 Adams, and is drilling at 2,665 feet on No. 2 Frazier, Section 6-17-13; No. 1 Nash, Account 3, Section 6-17-13, set 6⅝-inch at 3,055 feet, and No. 1 Raulston, Section 12-17-14, is a derrick. Oilwell Corp.'s No. 2-A Kelly, Section 9-17-14, is waiting on standard rig with 2,100 feet of fluid in the hole, 10 per cent water, from 2,824 feet, total depth 3,394 feet. Pure Oil Co.'s No. 6 W. E. Gregory, Section 15-17-14, is waiting on standard rig with 2,500 feet of oil in the hole from 5 feet of sand, total depth 3,261 feet. Rovenger Oil Corp. has derrick up for No. 2-B Perdue, 330 feet north and west SE cor. SE NE Section 9-17-14.

EAST TEXAS

Panola County

S. E. Davidson and others' No. 1 Johns, W. H. Wooley Survey, set 6-inch at 1,993 feet, total depth 2,069 feet. Eureka Natural Gas Co.'s No. 1 Becknall, E. Williams Survey, is fishing for bit and collar, total depth 2,670 feet; No. 1 Gulley pulled 4½-inch and reset at 1,850 feet, total depth 1,856 feet. Magnolia Petroleum Co.'s No. 2 T. C. Adams in the E. Jones Survey, is drilling at 657 feet; No. 13 Steele, B. C. Jordan Survey, is drilling 6⅝-inch plug at 2,658 feet, total depth 2,662 feet; No. 15 Steele is drilling at 100 feet. Nemours Corp.'s No. 1 Lawless, L. Chisholm Survey, is shut down at 820 feet waiting orders.

LA.-ARK. WILDCATS

(Continued from Page 46)

other plays are reported on these magnetic "lows."

Because of premiums being paid on crude in El Dorado no further reductions in the posted price of heavy oil following the reductions of last week are expected in this territory though there is some opinion that there may be another reduction on the lighter grades. Macmillan Petroleum Products Co. is reported to have contracted for 150,000 bbls. of Smackover heavy at a premium of 12½ cents above the posted price, payments to be made as the oil is run from Woodley Petroleum Co.'s Anderson and Goodwin tank farms.

Kettle Creek, Ouachita Valley, and Lion Oil Refining companies and Shreveport-El Dorado Pipe Line Co. are reported paying from 7½ to 15 cents premium on El Dorado and Smackover crude. Kettle Creek and Root Refineries are also said to be in the market for Smackover production and checking over properties available for purchase.

One Completion a Producer

One of the six wildcat and semiwildcat completions this week was a producer, J. E. Crosbie's No. 2 Canada, a semiwildcat on the north edge of Smackover, in Section 24-15-16, pumping 25 bbls. from 36 feet of broken sand, total depth 2,081 feet. Crosbie has 30 or more of these shallow wells in Smackover from which he is getting an average of 25 to 50 bbls. light oil daily. In Champagnolle eastern extension Magna Production Co. abandoned No. 2 El Dorado Realty Co. in Section 8-17-13, at 3,238 feet. The well is a quarter of a mile north and east of the same company's No. 1 El Dorado Realty Co. in Section 7, the farthest southeast well in the district which extended production a half mile in that direction, and had not had a show all the way down. Ohio Oil Co. abandoned No. 2 Southern Lumber Co. in Section 19-16-9, Bradley County, but is reported arranging to start another on its block northwest of the one on which this well is located, probably in Section 34-16-10. Three wells that have been carried on field reports for over a year, though they have been inactive all that time, were dropped from the list. Dawley and others' Fullenwider & Kitchen in Section 12-17-22, was abandoned at 2,847 feet. Mitchell and others' No. 1 Franks, Section 25-19-22, was abandoned at 150 feet. Von Hagen Syndicate's No. 1 Mason in Section 31-19-22, which had been rigged up but never drilled, was the third. All are in Columbia County, Arkansas.

Arkansas Natural Gas Co.'s No. 1 Tidwell, Section 29-22-11, Bossier Parish, which tested salt water at 2,685 feet made another drill stem test at 3,101-11 feet, got a slight show of oil and is coring further in the Woodbine, whence such oil as Cartersville, about 10 miles northwest, has produced was obtained. Smitherman & McDonald's deep test on the Miller farm in Section 27-23-8, Haynesville, bailed dry at 4,355 feet without a show and is coring. It missed the gas found in the Ramsey well in Section 14-23-8, around 4,200 feet and has been checked 14 feet lower than that well. A. C. Glassell, who took a half interest in El Dorado Chief Oil Co.'s No. 1 Baker in Section 26-20-7, south of Homer production and 240 acres surrounding, is arranging to resume drilling and will go to 3,000 feet. It has been shut down for some time at 2,092 feet.

Activity in Grant Parish

Gulf Refining Co. is reported active in leasing in Township 7-1e, Grant Parish. Carter & Collins of Monroe have a block in Township 7-1w and have two wells started, No. 1 Ball Lumber Co. in the SW cor. NE. Section 29-7-1w, on which they are drilling and No. 1 Hardtner & Tannehill in the SE NE, Section 9-7-1w, on which they have derrick up.

Dixie Oil Co. has resumed work on No. 1 Gilbert, a wildcat in Section 27-21-5, Claiborne Parish, but lost core barrel and two joints of drill stem at 5,003 feet. Carleton Drilling Co. tested dry at 1,365 feet on No. 1 Stevens, Section 12-11-16, in the Logansport district of the extreme southwest corner of DeSoto Parish, and is shut down for orders at 1,627 feet.

Nemours Corp. appears to have extended production in the Panola County gas field to the southeast with a show of 4,000,000 feet of gas at around 2,000 feet and set 6-inch at 1,993 feet. The well, No. 1 Johns in the W. H. Woodley Survey, was drilled to 1,950 feet by Davidson and others and taken over by the Dupont interests last fall. It was planned to go 3,000 feet but checking higher than older wells between it and the main body of the Bethany gas districts it appears there is some probability of it being a good gasser extending the shallow production. In Camp County Rogers and others were scheduled to make a drill stem test at 1,860 feet on No. 1 Enfelt in the R. M. Montgomery Survey where they say they had a good show in sand from 1,805-60 feet but the test has not been heard from here.

The play in Mississippi continues unabated with the Jackson anticline as the center of attraction. Shell, Pure, Gulf, Ohio, Carter and others have agents there and have taken blocks of various sizes and spreads in others all on 10-year commercial leases at 50 cents an acre, 25 cents renewal and a small bonus.

Plan 4,000-foot Test

Lion Oil Refining Co. has started drilling on the Misterfelt land in Section 2-4n-1e, Rankin County, planning a 4,000-foot test. Arkansas Natural Gas Corp., Pure Oil Co. and Standard Oil Co. of Louisiana have protection in this block, among others. Atlantic Oil Producing Co. is shut down for repairs to bailer on No. 1 Houston, Section 30-11-6, Sharkey County, at a total depth 1,373 feet.

In Monroe County, Arkansas Natural Gas Corp. drilled into a water sand at 2,785 feet on No. 1 Rye, Section 22-15-17, which it is deepening from 2,724 feet. It was a small gas well at 2,702 feet but salt water took it, and it is to be drilled to 4,000 feet. Amory Petroleum Co., which has been active in furthering development of this territory, has been completely reorganized to continue work on two of its old wells and a new one just begun. No. 1 Hall in Section 8-13-11, with total depth of 2,398 feet, is being rigged up with cable tools to go deeper, and No. 1 Bourland, Section 2-13-19, is underreaming 6-inch set at 1,850 feet to reset in another effort to cut off a water flow; No. 2 Carter in Section 7-13-17, set 40 feet of 20-inch. This well is about 600 feet north of the original Amory gasser completed in 1926. Park Bowser has rig up to drill No. 1 Cowart in Section 2-12-19, and expects to be drilling within a week.

Greer, Robinson & Fair, who were among those active in leasing on the Hatchitigbee anticline in southeastern Alabama last fall, have made location in the SE Section 28-10-4, Choctaw County on the Long-Bell Lumber Co. land and plan a 3,250-foot test.

NORTH LOUISIANA

Bossier Parish

Arkansas Natural Gas Corp. tested salt water at 2,685 feet and is drilling at 3,025 feet on No. 1 Tidwell, Section 29-22-11. Woodmansee and others' No. 1 Bollinger, Section 9-22-11, is drilling around 100 feet.

Caddo Parish

D. C. R. Oil Co. topped gas rock at 858 feet and is drilling at 928 on No. 1 Hunter, Section 17-19-14.

Claiborne Parish

Dixie Oil Co. is fishing for core barrel twisted off in No. 1 Gilbert, Section 27-21-5, total depth 5,003 feet.

DeSoto Parish

Carleton Drilling Co.'s No. 1 Stevens, Section 12-11-16, tested dry at 1,365 feet and is shut down at 1,607 feet waiting orders. Magnolia Petroleum Co. has derrick up for No. 3 Fortson, 660 feet north and west of the center of Section 4-12-11. R. O. Roy's No. 1 Sample, Section 1-13-14, is drilling at 1,310 feet. Thorn Oil Co.'s No. 1 Burford, Section 22-14-14, is drilling at 2,550 feet. Warren & Carruthers' No. 1 Ramsey, Sec-

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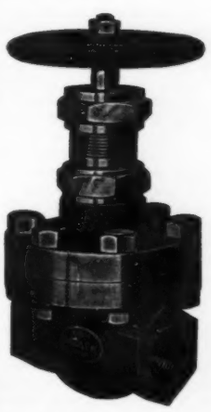

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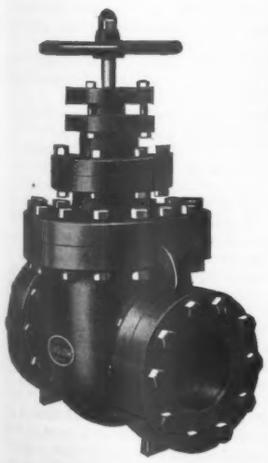

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tion 33-13-16, is shut down awaiting orders, total depth 2,760 feet.

East Carroll Parish

Palmer Corp.'s No. 1 Mitchner, Section 8-19-11, is drilling gumbo at 2,612 feet.

Franklin Parish

Davis and others' No. 1 Moore, Section 12-11-6, is in a rock at 1,263 feet.

Grant Parish

Carter & Collins, of Monroe, have rig up for No. 1 Ball Lumber Co. in the SW cor. NE Section 29-7-1w, and have location in the SE NE Section 9-6-1w for No. 1 Hardtner & Tannehill.

Lincoln Parish

V. E. Shaw and others set 10-inch on No. 1 Voss, Section 1-20-3w, at 60 feet, total depth 100 feet.

Monroe District

Ouachita Parish—Phillips and others' No. 1 School, Section 16-16-4, is drilling at 3,055 feet, corrected depth.

Union Parish — C. E. Cammatte and others' No. 1 Tugwell, Section 21-22-1e, is shut down at 1,700 feet for repairs to rig.

Richland Parish

Richland Operating Co.'s No. 1 Chapman, Section 19-16-7, is drilling shale at 2,300 feet.

Sabine Parish

R. L. Gay is drilling No. 2 Bowman-Hicks, Section 14-7-14, at 1,380 feet.

ARKANSAS

Ashley County

J. G. Marcum and others' No. 1 DeYampert, Section 5-19-4, is shut down at 2,789 feet. The Texas Company's No. 1 Keifer, Section 11-18-4, is drilling at 1,983 feet.

Drew County

Ohio Oil Co.'s No. 1 Jerome, Section 13-15-4, is drilling at 350 feet.

Logan County

Arkansas Natural Gas Corp.'s No. 1 Parks, Section 26-8-24, is underreaming 7-inch casing at 3,309 feet, total depth 3,609 feet.

Miller County

E. A. Martin's No. 4 Dale, Section 23-15-26, is shut down at 3,000 feet for repairs to rig.

Nevada County

C. F. Steele is drilling No. 1 Groves, Section 21-14-20, at 1,000 feet.

Ouachita County

J. E. Crosbie has rig up for No. 1-A Primm in Section 24-15-16. Flaucher and others' No. 1 Buck, Section 7-15-17, is a derrick. McDonald Brothers have all the junk out of No. 1 Wilson, Section 25-15-18, and are waiting on fuel, total depth 2,808 feet. Charles McDonald began drilling No. 1 Wilson, in the same section January 23, set 10-inch at 104 feet and is shut down at 750 feet waiting on fuel. Sam Sklar is drilling No. 1 Langley, Section 19-15-15, at 1,200 feet.

Union County

Bell and others are fishing for bit at 1,575 feet on No. 1 Terrell, Section 27-18-14. T. J. Bush has rig up for No. 1 McDonald in Section 11-17-18. Calgo Oil Co. is coring No. 1 Primm, Section 25-18-15, at 3,879 feet. E. L. Foster's No. 1 Murphy Land Co., Section 22-17-17, is drilling at 870 feet. J. P. Hawkins' No. 1 Goodwin, Section 6-17-15, is shut down at 1,204 feet. J. O. Moore has derrick up for No. 1 Union Sawmill in Section 11-18-12.

EAST TEXAS

Camp County

Rogers and others are arranging for drill stem test on No. 1 Enfelt in the R. M. Montgomery Survey from 1,805-60 feet.

Shelby County

Chapparall Oil Co.'s No. 2 Holt in the Matthew Moore Survey is shut down for orders, total depth 3,004 feet. Gulf Refining Co.'s No. 1 Carraway in the J. H. Patterson Survey is drilling hard sand with streaks of shale at 2,213 feet.

MISSISSIPPI

Hinds County

Lion Oil Refining Co. has location in the NW NW Section 2-5-1e for No. 1 Misterfeldt.

Monroe County

Amory Development Co.'s No. 1 Bourland, Section 2-13-19, is underreaming 8¼-inch cemented at 1,529 feet and will set 6-inch at 1,850 feet (total depth) to cut off as water flow) and is arranging to drill in with cable tools on No. 1 Hall, Section 8-13-17, total depth 2,398 feet. Amory Natural Gas Co. set two joints of 20-inch and is drilling at 75 feet on No. 2 Carter, Section 7-13-17. Bowser and others have derrick up for No. 1 Cowart in Section 2-12-19. Arkansas Natural Gas Corp. got a water sand at 2,785 feet on No. 1 Rye, Section 22-15-17.

Lincoln County

Louisiana-Mississippi Oil Co. is moving rig in to drill No. 1 Pat Case in the NE NE Section 21-8-6.

CALIFORNIA FIELDS

(Continued from Page 56)

matical if commercial production will be developed. Core samples reveal the formation to be a sandy shale streaked with gray sand at 3,895 feet. The next 100 feet of hole is expected to determine the status of this well, which is being drilled for the purpose of determining the potentiality of the town lot area immediately adjacent to the Potrero Field, which was discovered by the Associated Oil Co.

Midway-Sunset

Deep zone development involving the Maricopa brown shale in the Midway-Sunset Field of Kern County did not show any change during the past week, and the rush into this area following the coring of a rather promising oil sand in the Union's No. 1 Western Petroleum has subsided to some extent. Several wells on adjoining acreage have failed to encounter the reported sand, and it begins to look as though the potentiality of some sections has been overestimated. The Union is still drilling ahead in No. 1 Western Petroleum in Section 27-32-23, a recent core indicating a stained oil sand with little saturation. On nearby acreage, in Section 26-32-23, the Standard is drilling ahead in its No. 1 Mascot at 1,550 feet. If the Western Petroleum sand underlies the Mascot holdings the Standard should encounter it above the 2,000-foot level. The Italo Petroleum failed to encounter the Union sand southwest of the Standard's Mascot holdings, and this well has been abandoned at 3,560 feet. The Fortuna Oil Co. likewise failed to find production down to 2,653 feet in Section 28, and it begins to look as though the Cypress Oil Co.'s test in Section 22-32-23 will also prove negative. The Shell is making preparations to test out the Perris property in Section 15-32-23, located about a mile and one-half north of the Union's Western Petroleum, but situated along the same general strike. It will be recalled that the North American Consolidated drilled its No. 7-A in Section 16-32-23 down to 4,147 feet a few months ago without encountering production. Thomas Purman's test in Section 12-32-22, which encountered an oil sand a few weeks ago at 985 feet, has not yet been tried out and the potentiality of this oil or tar sand is therefore problematical. Considerable leasing has gotten under way following this discovery, and this activity may ultimately result in the starting of additional development work. This drilling is not expected to influence production to any appreciable extent, however, as sands found in this area are more or less lenticular in character and consequently of less significance.

Fruitvale

Another new well was chalked up in the Fruitvale Field of Kern County during the current week, but it was subsequently shut in due to the inability to dispose of production. This was the Mohawk Oil Co.'s No. 2 in Section 27-29-27, which showed an initial of 243 bbls. daily from 3,630 feet, the oil being clean and testing 22.9 degrees. The crew from this well was shifted to No. 3 and rotary equipment is being rigged up at the present time. The Shell's No. 1 Kern County Land in Section 9-29-27 has all the earmarks of a duster at 5,115 feet, and while the Standard's outpost in Section 24-29-27 also looks like a dry hole there is still a possibility of developing production within the next 500 feet. The Texas Company finished a new well in the West Front area of the Kern River Field several days ago when No. 8 Lehman was put on the beam at 2,056 feet. It showed an initial pumping of 278 bbls. daily, the oil testing 17.2 degrees in gravity. The Texas Company also completed No. 9 Midland in Section 14-28-27 at 2,030 feet, but it has not yet been passed for production. The Richfield Oil Co. is starting two new wells northeast of the Kern River Field in Section 22-28-28, a little less than a mile from production. This work is based on the assumption that a new extension may be developed similar to the West Front, which has been undergoing development during the past few years, but these wells will be carried down for a deep conclusive test.

GULF COAST FIELDS

(Continued from Page 51)

at 2,475 feet and No. 77 is in gumbo at 2,801 feet. No. 78 is rigged up.

Gulf Production Co.'s No. 17 McLean is drilling shale at 5,323 feet. Sutherlin and associates' No. 2 Longhorn is ready to spud.

Goose Creek—Harris County

Humble Oil & Refining Co.'s No. 74 Simms-Smith, northeast of the field, is drilling sticky shale at 6,967 feet. Gulf Production Co.'s No. 13 Paddoc-Smith has drilled into oil sand at a total depth of 3,644 feet and has set casing to test. Gulf's No. 8 John Gaillard fee, a former well, is rigged up to deepen. Atlantic Oil Producing Co.'s No. 20 Gaillard, a former well, is drilling deeper at 2,093 feet.

Hull—Liberty County

Gulf Production Co.'s No. 68 Phoenix is sidetracking at 2,847 feet. No. 92 Phoenix is in an oil sand at 3,021 feet and has set casing. No. 25 Morris-Phillips is drilling at 1,455 feet. Humble Oil & Refining Co.'s No. 3 Hooks-Spell is drilling at 3,286 feet. Mecom Oil Co.'s No. 10 Taylor is drilling below 600 feet. On the Dolbear lease, Republic Production Co.'s No. 25 is at a total depth of 4,161 feet. No. 53 Dolbear is drilling at 2,499 feet. Two other former wells, Nos. 37 and 76, are being rigged up to deepen.

Blue Ridge—Fort Bend County

Superior Oil Corp.'s No. 5 West Schenck, on the south side of the dome, came in making some dry gas from a sand at 3,147 feet but was deepened to 3,296 feet where it went into salt. It is shut down for orders. Humphreys Corp.'s No. 5 West-Schenck, same district, is drilling at 3,131 feet. Gulf Production Co.'s No. 6 Invincible, on the east side, is drilling gumbo around 3,020 feet. This company's No. 14 Luscher is drilling below 3,053 feet. South Texas Petroleum Co.'s No. 3 Lafferty, east side, is drilling shale and lime at 3,032 feet. Sheffield, Telshaw & Cady's No. 2 Blakely, north side, is drilling below 2,586 feet. Navarro Oil Co.'s No. 4-A Robinson, a former producer at 3,509 feet, is drilling deeper.

Liberty—Liberty County

In the shallow sand area, Gulf Production Co. is expecting another producer in its No. 8 McLean which Saturday was testing 816 feet. Other rigs running in this district Saturday which were on or near the shallow sand included Gulf's No. 7 McLean, Sun Oil Co.'s No. 31 Mitchell, No. 33 Mitchell, No. 34 Mitchell and No. 36 Mitchell, and The Texas Company's Nos. 18 and 19 Staiti. Locations and derricks are standing for five other tests.

To the north of this pool, Empire Gas & Fuel Co.'s No. 1 Goggan is drilling below 2,404 feet. Liberty Petroleum Co.'s No. 2 Turner is standing, as is Painter Oil Co.'s No. 1 Turner.

Navarro Oil Co.'s No. 1 Baldwin, in the old part of the field, is drilling clay at 90 feet, having just started drilling. Sun Oil Co.'s No. 26 Mitchell is in sandy shale at 3,497 feet. Yount Lee Oil Co.'s No. 14 Mitchell has set screen to test sand at 3,400 feet. This company's No. 15 Mitchell is standing a derrick pending completion of No. 14.

On the northwest side of the dome, The Texas Company's No. 3 Pickett is drilling sand and shale at 2,826 feet. Vacuum Oil Co.'s No. 1 Trinity River is drilling at 1,072 feet after setting 13⅜-inch surface casing at 1,066 feet. Trinity Oil Co. has a rig up for No. 1 Pickett.

Boling—Fort Bend and Wharton

Gulf Production Co.'s No. 5 Bay, northeast flank of Boling, is in sandy shale from 3,940-99 feet where it showed salt water. South Texas Petroleum Co.'s No. 1 Fotjeck-Hyde is drilling sticky shale at 3,925 feet. The Texas Company's No. 1-A Dipple is drilling shale at 3,166 feet. The latter's No. 1-B Dipple is in sand at 974 feet. No. 1 Pleasant is standing a rig. Scott & Peck's No. 1 Armstrong is in hard sand at 3,840 feet. Sun Oil Co.'s No. 2 Rogers is drilling gumbo and lime at 2,432 feet. This company's No. 4 E. C. Farmer, southeast flank, is drilling hard sand at 3,758 feet. The Texas Company's No. 2 E. C. Farmer is rigged up.

On the south side of the dome, Vacuum Oil Co.'s No. 2 Taylor has cemented 6⅝-inch casing to test a sand at 3,304 feet which showed some oil. No. 1 Taylor, which drilled into salt to 3,177 feet, has plugged back to a sand at 2,920-40 feet where several months ago it made a well which flowed for a short time. The No. 2 Taylor is a direct east offset to The Texas Company's No. 12-A Taylor which was completed several months ago as a 4,000-bbl. well. All these wells are in wildcat territory.

Orange—Orange County

Brownie-Babbette Oil Co.'s No. 5 McLean, a workover, is drilling deeper at 4,081 feet. Continental Oil Co.'s No. 14 Chesson, also a workover, is testing a sand at 3,019 feet. Rex Petroleum Co. has a rig up to deepen No. 14 Carbello. Sinclair Oil & Gas Co. also will deepen its No. 4 Granger, and Tillery Oil Co. its No. 3 Tasco.

SOUTH LOUISIANA

Lockport—Calcasieu Parish

Vacuum Oil Co. will deepen its No. 13 Miller, a former producer, and is sidetracking at 4,221 feet. No. 22-A Miller is drilling clay at 110 feet. The latter is being drilled on No. 22 Miller's location without skidding either derrick or rig. The hole is just 3 feet from No. 22, only the rotary being skidded to drill it. No. 22 was completed the past week as a 1,200-bbl. well while No. 22-A will drill to the 1,200-foot level where an oil sand was passed up by No. 22. No. 23 Miller is drilling gumbo at 3,319 feet. No. 4-A Farquahar is in an oil-showing sand at 4,514 feet which will be tested with a sand tester. No. 1 Henshaw & LeMoin also is in an oil sand at a total depth of 5,597 feet. A derrick has been built for No. 5 Bayou D'Inde.

Shell Petroleum Corp.'s No. 1 Miller is rigged up and will start drilling this week.

Jennings—Acadia Parish

E. F. Simms' No. 1 Grace Vonschuler, west flank deep sand test, is drilling sand at 5,068 feet. This operator's No. 2 Cockrell is drilling clay and sand at 500 feet. No. 2 Clemont is to be started up again after being shut down since November. Hole is being cleaned at 3,446 feet. Gulf Refining Co.'s No. 36 Jennings-Clemont tested salt water at 3,187 feet and is to be deepened. Jennings Petroleum Co.'s No. 2 Crowley has set 6-inch casing at 3,746 feet to test a showing.

On the east side of the dome, The Texas Company's No. 107-A Latrielle is in an oil sand at a total depth of 1,733 feet. Plug has been drilled out at 1,698 feet preparatory to testing. Yount Lee Oil Co.'s No. 6 Housierre-Latrielle is drilling sand at 5,446 feet. This company's No. 4 Crowley is drilling sand and gravel at 872 feet.

Edgerly—Calcasieu Parish

Drysdale & Savoy's No. 3 Hill, which came in earlier in the week heading a small amount of net oil at 3,147 feet, is running tubing. Rex Petroleum Co.'s No. 9 Hunter is in a sand and shale showing oil at 3,460 feet and has set 6-inch at 3,419 feet. Green Oil Co. is rigging up to deepen No. 6 Moore, and Wilson-Broach for their No. 2 Wilson.

Vinton—Calcasieu Parish

Gulf Refining Co.'s No. 47 Star-Vincent is being abandoned as a junked hole at a total depth of 3,632 feet. Marrs McLean's No. 12 Gray is drilling at 1,-

246 feet. Vinton Petroleum Co.'s No. 1 Matilda Gray is drilling at 2,569 feet.

Hackberry—Cameron Parish

Calcasieu Oil Co.'s No. 13 Watkins, East Hackberry, is drilling hard sand at 1,115 feet. The Texas Company's No. 4-B Calcasieu Lake, extreme east side of the East Hackberry Dome, is building derrick.

On the Old Hackberry Dome, Cameron Oil Co. and Rycade Oil Corp. have abandoned their No. 1 Vincent in heaving shale at 3,825 feet, but have made location for No. 2 Vincent. These tests are on the south side in the vicinity of the same operators' No. 2 Duhon, discovery well of the Old Hackberry Dome. The latter well, after quitting flowing several weeks ago, has been put on the pump and is making around 200 bbls. Cherokee Oil Co.'s No. 1 Duhon is drilling shale at 812 feet. Madison and associates' No. 1 Duhon is down 805 feet, where 8-inch surface casing has been set. Noble and associates' No. 3 Elender is drilling gumbo at 538 feet. Sutton, Seiss & Green's No. 1 Sonnier is in a sand at 2,865 feet. Yount Lee Oil Co.'s No. 1 Perkins is drilling sand and shale at 3,850 feet. The latter's No. 1 Vincent is drilling gumbo and lime at 2,780 feet.

On the west side of the dome, Rycade Oil Co. and Humble Oil & Refining Co. have made location for No. 1 Gulf Land, which is 230 feet south and 50 feet east of the NW cor. SE SE of Section 30-12s-10w. Rycade's No. 1 Gulf Land is drilling deeper in sticky shale at 4,327 feet.

Miscellaneous Fields

At Damon Mound, Brazoria County, Sinclair Oil & Gas Co.'s No. 5 Norton is drilling rock at 4,077 feet, passing through 200 feet of heaving shale. Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 4 Hudson, Markham, is drilling sandy shale at 2,986 feet. Gulf Production Co.'s No. 18 Moore, Orchard, is drilling below 1,653 feet. Sun Oil Co.'s No. 1 Kovelieka, wildcat at North Dayton, is waiting laying of an oil line to storage before testing a sand at a total depth of 4,468 feet.

Yount Lee Oil Co.'s No. 4 Louisiana Petroleum Co., Anse La Butte, St. Martin Parish, Louisiana, is rigged up to spud in this week. Rycade Oil Corp.'s No. 3 Atchafalaya, Bayou Bouillon, same parish, is in sand at 4,554 feet. This company's No. 6-C Bouillon fee, same dome, is drilling sand and gravel at 759 feet. No. 8 Bouillon and No. 3 Louisiana State are rigged up. Gulf Refining Co.'s No. 11 United Land Co., Sorrento, Ascension Parish, spudded in during the week, and Saturday was drilling at 401 feet in gumbo. Pure Oil Co.'s No. 7 Yount Lee Oil Co. was being washed Saturday after setting two joints of screen to test a hard sand at 4,594 feet. It was showing some oil through the wash water. This is the shallowest sand to be tested at Sweet Lake. No. 8 Yount Lee Oil Co. is drilling gumbo at 4,275 feet.

MISCELLANEOUS WILDCATS
TEXAS

Brazoria County — Shell Petroleum Corp.'s No. 3 Reece, Allen Dome, is drilling hard, sandy lime at 3,540 feet. This company's No. 5 Allen is drilling hard, sandy lime at 4,467 feet. Empire Gas & Fuel Co.'s No. 2 Brock, Stratton Ridge, is drilling shale and lime at 2,829 feet.

Chambers County—Gulf Production Co.'s No. 1 Wilborn, Hankamer Dome prospect, is drilling shale at 3,920 feet. Pure Oil Co.'s No. 2 Lost Lake, Lost Lake Dome, is drilling sandy shale at 3,320 feet. No. 1 Mays is drilling sand and lime at 964 feet.

Fort Bend County

South Texas Petroleum Co.'s No. 1 Hartfield, Needville Dome prospect, tested salt water at a total depth of 5,011 feet, in a sand topped at 4,996 feet. It will be deepened.

Hardin County—Gaddy Oil Co.'s No. 1 Sternberg is drilling at 1,475 feet.

Galveston County—Operations have been resumed at two wildcats at Dickinson which have been shut down two months. Long and associates' No. 1 Irwine & Bishop is drilling gumbo at 4,410 feet. Republic Production Co.'s No. 1 Lobit is reaming to the bottom at 3,812 feet.

Harris County—Baldwin and associates' No. 1 Kitzman, Cypress, is drilling shale at 3,190 feet. Humble Oil & Refining Co.'s No. 1 Minnetex, Mykawa, is drilling shale at 5,328 feet. This company's No. 5 Warren, Hockley, is drilling soft sand at 1,648 feet. Paxton and associates' No. 1 Brubacker, Cloding, is fishing stuck drill pipe at 1,146 feet. South Texas Petroleum Co.'s No. 1 Hicks & Higbee, Almeda Dome prospect, is drilling sticky shale at 2,121 feet.

Jackson County—The Texas Company's No. 1 Moore, D.&G.N. Survey 311, 16½ miles north of Edna, is drilling shale at 3,077 feet. Wright Brothers' No. 2 Classen, Edna gas district, is drilling shale at 3,792 feet. These operators have a derrick up for No. 8 Drushel.

Jefferson County—The Texas Company's No. 1 Pipkin, Big Hill, is drilling sand and shale at 3,944 feet. Gulf Production Co. is rigging up to deepen its No. 6-A Bordages, Fannette Dome. The latter, the first producer at Fannette, was completed as a small pumper last September in a sand at 4,775 feet. It will be deepened to the sand found during January by No. 2 Burrell at 5,607-17 feet, a well now flowing around 900 bbls. daily. Bleakie Oil Co.'s No. 1 Tolliver is drilling gumbo below 1,214 feet. Farhar and associates' No. 1 Rohwedder, 5 miles northeast of Beaumont, is drilling at 1,802 feet. Westbury Syndicate's No. 1 West, northeast of Westbury, is preparing to deepen from 2,624 feet.

Liberty County—Humble Oil & Refining Co.'s No. 3 Sterling, Moss Bluff Dome, is drilling shale at 3,192 feet. The Texas Company is spudding in on its No. 2 Davis, Davis Hill. Union Exploration Co. is spudding on its No. 2 Esperson, Fisher Survey. Sun Oil Co.'s No. 1 Kovelieka, North Dayton wildcat, is waiting to test sand at a total depth of 4,468 feet.

Matagorda County—Crossland and associates' No. 1 Murphy, Shepherds Mott, is drilling gumbo at 2,910 feet. Griffith and associates' No. 1 Culver, Citrus Grove, is sidetracking at 1,650 feet. It has been shut down several months with drill stem stuck at 3,212 feet.

Orange County—The Texas Company's No. 1 Kuhn, Port Neches, is rigged up.

Waller County—The Texas Company has rigged up for No. 1 Young on the Young Ranch prospect in the western part of the county.

Washington County — Sun Oil Co.'s No. 1 Mrs. J. H. Grote, which came in early in the week making a large amount of fluid, mostly salt water, from a sand at 1,395 feet, is being worked over. This company's No. 1 J. Marcus is drilling shale at 3,585 feet. No. 1 C. H. Marcus is drilling shale at 773 feet. No. 1 Einman has 9⅝-inch casing cemented preparatory to testing a sand at 1,850 feet. This test was plugged back from a total depth of 1,875 feet. Sun has made locations for No. 2 C. Einman, No. 2 J. H. Grote and No. 4 G. H. Grote.

Wharton County—Hearte and associates' No. 1 Brown, south of El Campo, is drilling shale at 1,667 feet.

SOUTH LOUISIANA

Ascension Parish—Gulf Refining Co.'s No. 11 United Land Co., Sorrento, is drilling below 400 feet in gumbo. This company's No. 1 Belle Helene, first location on the Darrow Dome prospect, is standing. Burnside Oil Co.'s No. 1 Robert is drilling gumbo at 856 feet. Triumph Oil Corp.s No. 2 Lacey, southeast of the town of Sorrento, is drilling at 1,393 feet.

Cameron Parish — Shell Petroleum Corp.'s No. 6 Watkins, Black Bayou, is drilling brown shale at 2,847 feet. No. 7 Watkins is in blue gumbo at 342 feet. The Texas Company's No. 3-A Calcasieu Lake is standing a location.

Iberia Parish—Gulf Refining Co. has abandoned its No. 8-Z State, Loreauville, in salt at 1,235-40 feet. No. 3 Kling is drilling at 2,946 feet. No. 1 Moresi is being rigged up. The Texas Company's No. 3-A Vermillion Bay is drilling rock at 4,032 feet.

Iberville Parish — Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is drilling sticky shale at 2,744 feet. Standard Oil Co. is building derrick for No. 2 Wilbert, Bayou Blue. No. 1 Schwing is drilling at 1,800 feet. Union Sulphur Co.'s No. 3 Schwing, Bayou Des Glaise, is down 3,557 feet.

Jefferson Davis Parish—Vacuum Oil Co.'s No. 1 DeVilbiss, Roanoke Dome prospect, is drilling deeper in oil sand at 4,271 feet.

Miscellaneous Parishes — Evangeline Oil Co.'s No. 1 Crowell-Spencer, Pine Prairie Dome, Evangeline Parish, is drilling shale at 4,661 feet. The Texas Company's No. 1 Botney Bay, Point Barre, St. Landry Parish, is drilling shale at 3,584 feet. Joan Development Co.'s No. 1 Lake Superior, Tangiphoa Parish, is drilling gumbo at 310 feet. West Pearl Oil Co.'s No. 1 Fritsche, St. Tammany Parish, is standing at 2,020 feet. Other miscellaneous wildcats in southern Louisiana are standing at previous reports.

KANSAS FIELDS

(Continued from Page 44)

feet. No. 1 Wedel, C SW, Section 12-20-2w, was completed for 5,000,000 feet of gas in sand at 2,960-83 feet. The Prairie Oil & Gas Co.'s No. 1 Anderson, C NW NE, Section 31-18-2w, was completed for 8,000,000 feet of gas in sand at 2,976 feet.

Harvey County

Roth & Faurot and others made location for No. 1 Nebergall, NW cor. Section 26-22-1w.

Rooks County

Krueger and others' No. 1 Poore, NE cor. Section 14-8-16w, is dry and abandoned at 3,605 feet.

Russell County

Gypsy Oil Co. and Marland Oil Co. made location for No. 1 Obenschane, SW cor. NW, Section 28-13-15w. Midwest Exploration Co. made location for No. 22 Dortland, NW cor. SE SW, Section 5-14-15. Stearns & Streeter and others' No. 1 Gorham, SW cor. NE, Section 7-13-15w, made 25 bbls. from sand at 3,188 feet.

Rush County

Danciger and others made location for No. 2 Schuermann, NW cor. Section 27-17-17w.

Sedgwick County

Bason and others made location for No. 1 Heskins, NW cor. NE SE, Section 2-27-2. Bu-Vi-Bar Petroleum Co. has the rig up for No. 1 Bright "A," SW cor. NW NW NW, Section 6-26-1. The rig is also up for No. 1 Bright "B," SW cor. SE NW NW, Section 6-26-1, Valley Center Pool. The rig has been moved out for No. 1 Roll, NW cor. NE, Section 7-26-1. Stearns & Streeter's rig is up for No. 1 Woodman, SW cor. NW NE, Section 7-26-1. Bu-Vi-Bar Petroleum Co. and others' No. 1 Nagel, NE cor. SW, Section 19-25-1, is a rig on the ground.

La Robb Oil Co.'s No. 1 Smyser, NE cor. SW SE, Section 36-25-1w, Valley Center Pool, has been completed for 800 bbls. in sand at 3,437-41 feet. Hartman & Skaer and others' No. 1 Froman, SE cor. SW, Section 35-25-1, is dry and abandoned at 3,566 feet. Mary Jane Oil Co.'s No. 1 Fitch, NW cor. SE SW, Section 6-26-1, was completed for 1,900 bbls. in sand at 3,378-82 feet.

Sumner County

Champlin Oil & Refining Co.'s No. 5 Latta "B," NW cor. SE NW, Section 9-30-2w, has been completed for 30 bbls. in sand at 3,082-97 feet. McCulloch Oil Co.'s No. 1 Tuttle, SW cor. NE, Section 29-34-1w, is dry and abandoned at 4,640 feet.

Woodson County

Fisher & Lauck moved a machine to the location for No. 1 Mabe, NE cor. NW NE, Section 31-24-15.

SOUTHWEST TEXAS FIELDS

(Continued from Page 49)

wards St. Albans estate" No. 4 Holbien, Share 3, Block 7, located 150 feet to north and west lines is drilling at 800 feet.

Carolina-Texas Field

C. R. Miller's (Miller-Daniels) No. 1 de la Garza, Survey 48, Block 47, located 150 feet to north and east lines is drilling at 2,250 feet. W. R. Shankle's No. 1 Webster, NE SE, Survey 684, located 150 feet to south and west lines is drilling at 2,330 feet. Foster Barnsley's No. 5 (1) Webster, NE SW, Survey 684, located 510 feet to north line and 150 feet to east line is testing at 2,619-21 feet. Barnsley-Scharf-Kirk's No. 4 (2) de la Garza, Survey 335, Block 21, located 200 feet to north line and 150 feet to east line, set casing at 2,025 feet and at 2,070-72 feet tested large gas well and is running tubing.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet to east line and 160 feet to north line is setting 10-inch casing at 38 feet. Houston Oil Co.'s No. 4-D Benavides, Survey 753, Block 13, is location 160 feet to south line and 822.5 feet to east line; No. 17-D Benavides, Survey 753, Block 5, is location 160 feet to south and west lines; No. 19-D Benavides, Survey 753, Block 5, located 660 feet to east line and 160 feet to south line is location; No. 1-G Benavides (Rosa), W half SE, Survey 701, is location 160 feet to south and east lines.

Magnolia Petroleum Co.'s No. 1 Benavides-Volpe, SE SW, Survey 660, located 150 feet to south and west lines is drilling at 2,380 feet; No. 1 Benavides, Survey 697, Block 10, is location 150 feet to north and east lines; No. 1 King-Benavides, Survey 694, Block 12, is location 150 feet to south and east lines. Union Exploration Co.'s No. 1 Benavides, Survey 694, Block 3, located 150 feet to south and west lines is rigging up. W. F. Morgan's No. 1 Benavides, NE SW, Survey 693, located 150 feet to south and west lines is down 2,388 feet with no sand.

Cole Gas Field

O. W. Killam's No. 4 (1) Bruni, Survey 5, Block 2, located 150 feet to northwest and northeast lines is rigging up; No. 5 Bruni, Survey 8, Block 26, located 203 feet to southwest lines and 270 feet to northwest lines is drilling at 110 feet.

Jennings Field—Zapata

Charles L. McCaslin's No. 1 R. Hinnant, Survey 74, located 2,390 feet to west line and 630 feet to south line has derrick up. South Texas Production Co.'s No. 3 Jennings, Cerrito Blanco grant, 9,397 feet to southeast lines and 9,710 feet to southwest lines is drilling at 1,800 feet. Killam-Duggan's No. 4, Cerrito Blanco grant, 1,511 feet to northeast lines and 627 feet to northwest lines is drilling at 250 feet.

Charco Redondo Field

W. R. Duke's No. 3 Martinez, Block 22, located 1,300 feet to northwest lines and 840 feet to northeast lines is drilling at 850 feet.

Mirando Valley Field

O. W. Killam's No. 1-A R. Lopez, Survey 113, Block 5, located 250 feet to west line and 340 feet to north line is drilling at 2,300 feet.

Yoast Field—Bastrop

Atlantic Oil Producing Co.'s No. 2 A. M. Yoast, A. Garcia Survey, 1,950 feet to northwest lines and 150 feet to southeast lines is testing Serpentine at 1,467 feet; No. 3 A. M. Yoast, same survey, 545 feet south of No. 1 and 300 feet southeast of No. 2, is drilling at 1,385 feet in Serpentine topped 1,367 feet. Judge Batts' No. 1 White, 2 miles northeast of field, is drilling at 1,000 feet. Cranfill & Reynolds' No. 6 Yoast is drilling at 925 feet; No. 1 Stork, H. Stewart Survey, 150 feet to north and east lines is drilling at 1,760 feet. Gulf Production Co.'s No. 1 A. M. Yoast, A. Garcia Survey, 1,593 feet to northwest lines and 150 feet to northeast lines is drilling at 985 feet. Sun Oil Co.'s No. 1 Yoast, A. Garcia Survey, 1,650 feet to northwest lines and 150 feet to northeast lines at 1,588 feet plugged back to 1,578 feet total depth to complete.

Gas Ridge—Bexar

Medio Oil Co.'s No. 9 Cohen, 500 feet southeast of No. 7, is shut down at 470 feet.

Bruner (Salt Flats Field)—Caldwell

Tip De Armand's No. 1 R. W. Carter, Gerren Hinds Survey, 120 feet to west line and 148 feet to north line blew out second time and trying still to complete as gas well. J. S. Abercrombie Oil Co.'s

No. 5 Lida Moses, A. Floyd Survey, is at 2,724 feet rigging up to pump. Brawn and others' (Chief of Police Miller) No. 1 R. W. Carter, Gerren Hinds Survey, 150 feet to south and west lines is standing at 2,679 feet. D. F. Bryan's No. 1 Davis, G. Hinds Survey, is location. J. J. Capps' No. 1 G. W. New, James Hinds Survey, is at 1,310 feet waiting for boiler.

Cranfill & Reynolds' No. 1 S. Smith, A. Floyd Survey, 150 feet to south and west lines is in Edwards at 2,685 feet. C. E. Ellzey's No. 1 Taylor has set surface casing at 42 feet. Guerrin & Gastor's No. 1 Davilla, Isaac Weldon Survey, is location in southeast corner. Golden West Oil Co.'s No. 2 Cora Malone, A. Floyd Survey, 200 feet to northwest lines and 150 feet to northeast lines at 2,732 feet is going on the pump.

Gulf Production Co.'s No. 1 W. O. Allen, Gerren Hinds Survey, 150 feet to west line and 173 feet to south line is drilling at 2,574 feet; No. 7 W. L. Smith, 300 feet north of No. 6, has derrick up; No. 8 W. L. Smith is drilling at 2,696 feet; No. 7 Connally is bailing in the chalk at 2,330 feet; No. 1 Jim Smith is at 2,717 feet waiting for standard rig; No. 1 R. W. Carter, at 2,230 feet is flowing oil.

Humble Oil & Refining Co.'s No. 1 W. O. Allen, is drilling at 2,670 feet in Georgetown; No. 1 Moses & Baggett has derrick up; No. 2 T. B. Johnson, James Hinds Survey, 600 feet west of No. 1, is drilling in at 2,642 feet; No. 3 J. B. Tiller is drilling at 2,692 feet; No. 4 J. B. Tiller is in Edwards at 2,714 feet topped 2,695 feet; No. 1 J. J. Davis, A. Floyd Survey, 150 feet to north line and 453 feet to west line is drilling at 2,600 feet; No. 2 J. J. Davis is drilling at 2,695 feet in Edwards topped at 2,687 feet; No. 3 J. J. Davis is drilling at 2,288 feet in chalk and is showing oil; No. 1 W. W. Hickman, Gerren Hinds Survey, 150 feet to north and east lines has steel derrick up; No. 3 William Smith is drilling at 2,568 feet and showing oil; No. 4 William Smith is in Georgetown at 2,655 feet and is waiting for cement; No. 2 Floyd Tiller, Gerren Hinds Survey, is location 150 feet to north and west lines.

C. E. Lange's No. 1 W. P. Walker, Gerren Hinds Survey, 150 feet to north and west lines at 2,771 feet in Edwards tested water and oil and is shut down for orders; No. 2 W. P. Walker, same survey, 150 feet to west line and 214 feet to south line is standing at 1,500 feet; No. 1 Kate Colding, A. Floyd Survey, 150 feet to northwest lines and 112 feet to northeast lines at 2,687 feet, total depth, shot at 2,480 feet in the chalk and is showing oil. Lutex Oil, Inc.'s No. 6 Davis, A. Floyd Survey, offsetting Carl Brothers' No. 1 Malone at 2,763 feet, has 30 quarts of nitroglycerin stuck in hole above a bridge.

Linderman & Atlantic's No. 2-A W. F. Davis, A. Floyd Survey, 150 feet to southwest and southeast lines of "A" lease is at 2,726 feet swabbing oil and some water. Luling Oil & Gas Co.'s No. 3 Carter at 2,918 feet is pulling casing and will plug back to test chalk. Speer Well Oil Co.'s (Plum Creek Oil) No. 1 E. L. Mayton, Hector McNeil Survey, in center of survey, is sidetracking at 2,810 feet. H. C. Ratcliff and others' No. 1 Cora Maloné, A. Floyd Survey, 150 feet to north and west lines is standing at 2,694 feet.

Shell Petroleum Corp.'s No. 1-B Carter, Gerren Hinds Survey, 150 feet to south and west lines has derrick up; No. 1 Malone is location; No. 3 Malone, A. Floyd Survey, is at 2,459 feet waiting for cement; No. 2 William Moses, 300 feet north of No. 1, is drilling at 2,580 feet in limestone; No. 3 William Moses is drilling at 2,452 feet in Taylor marl; No. 3 W. L. Smith is at 2,695 feet; No. 2 F. Tiller has set 12½-inch casing at 53 feet; No. 1 Floyd Tiller at 2,707 feet is waiting on cement; No. 1 J. Smith, A. Floyd Survey, 150 feet to north and east lines is drilling at 2,710 feet in Edwards topped at 2,704 feet. Sun Oil Co.'s No. 4 Malone, A. Floyd Survey, 1,033 feet to northwest lines and 150 feet to northeast lines at 2,714 feet is running line. Stover & May's No. 1 Bell, Luling Survey, Block 24, is location 20 feet to north and west lines; No. 1 Edwards, same survey, Block 5, is location in center.

The Texas Company's No. 1 Carter is location; No. 1 Lee Moses, Gerren Hinds Survey, 150 feet to CWL, is at 2,641 feet rigging up to pump; No. 3 Merriweather is setting casing in the top of the chalk; No. 5 Merriweather, A. Floyd Survey, 150 feet to northeast and southeast lines has derrick up; No. 6 Merriweather, A. Floyd Survey, 150 feet to northwest lines and 70 feet to northeast lines is drilling at 2,345 feet in chalk. Turman & Brown's No. 1 Beversdorff, A. Floyd Survey, is location 150 feet to southeast lines and 131 feet to southwest lines.

Lockhart Field

The Texas Company's No. 2-B Branyon, John R. Miller Survey, 1,580 feet to west line and 150 feet to south line at 2,356 feet bailed dry and filled 350 feet in oil and water in half an hour.

Sullivan Pool—Gonzales

Cranfill & Reynolds' No. 1 J. F. Webb, Winslow Turner Survey, 150 feet to north and east lines and south offset to discovery well, is drilling at 3,400 feet and logging with discovery well. Empire Gas & Fuel Co.'s No. 1 River Bed, southwest of the discovery well, is moving in rig. The Texas Company's No. 1 J. E. Lamkin, Winslow Turner Survey, 800 feet to northwest lines and 200 feet to southwest lines is location.

Luling Field—Guadalupe

A. B. A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet for repairs on the boilers.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Section 40, Lot 10, located 250 feet to east line and 450 feet to north line is drilling at 4,545 feet.

Agua Dulce Field—Nueces

Milam Drilling Co.'s (Davis, Horn and others) No. 1 Thomas Ragland, Manton & Briggs Subdivision, SW cor., Lot 13, is drilling at 2,054 feet. R. & G. Corp.'s No. 1 Brown, George H. Paul Subdivision, Section 87, is location; No. 2 Ed Allen, Lot 5, Section 6, is location 150 feet to north and east lines.

Refugio Field—Refugio

Houston Oil Co.'s No. 5 Wilson Heard, 300 feet west of No. 4, has spudded in; No. 1 Blanco River is location. Houston Gulf Gas Co.'s No. 4 J. M. O'Brien has spudded in; No. 1 Fox is drilling at 3,900 feet with no sand at 3,700 feet; No. 3 Fox, Lot 4, Block 5, at 3,300 feet is trying to get on the bottom; No. 7 James Agnes Lambert at 4,668 feet cored shale. Mission Drilling Co.'s No. 3 Rogers estate is erecting derrick; No. 1 Nellie B. Summins, at 3,800 feet, has passed three gas sands and set casing at 3,200 feet to shut out the gas. William M. Morgan's No. 1 Rooke at 4,638 feet cored sandy shale with no oil. Union Exploration Co.'s No. 1 Rooke is rigging up; No. 1 Holmes Heard, Tract 3, Block 8, at 3,695 feet is pulling screen to clean out. Union Exploration Co. and William F. Morgan's No. 2 Leslie Adkins, Block 8, is to drill in at 3,669 feet.

Victoria County

Humble Oil & Refining Co.'s No. 1 Kohutek, near Nursery, has been completed at 603 feet.

Zapata County

O. W. Killam's (Conway) No. 1-A R. Lopez, Survey 113, Block 5, at 2,346 feet has been abandoned dry.

NEW LOCATIONS MADE

Atascosa County

W. R. Hamilton's No. 14 R. T. Hughes, J. Sharp Survey No. 518, is location 565 feet south of the No. 6.

Bexar County

Gulf Production Co.'s No. 1 F. Gutz, M. F. Rodriguez Survey No. 3, located 150 feet to north and west lines, is moving in machinery.

F. H. Eckert's No. 3 Dobrowolski, Survey 52, Block 4, located 300 feet south of the No. 1, has been spudded in.

Schimmel Petroleum Co.'s No. 1 Frees, C.E.P.I.&M. Survey, Block 2, is location 250 feet to east line and 829 feet to south line.

Caldwell County

W. R. Alexander's No. 1 G. W. New, James Hinds Survey, 300 feet to west line, is location.

Tips de Armond's No. 2 Carter is location 50 feet from the No. 1.

Gulf Production Co.'s No. 2 W. O. Allen, Gerren Hinds Survey, 450 feet to west line and 173 feet to south line, is location.

Gulf Production Co.'s No. 2 Carter, Gerren Hinds Survey, is location 450 feet to east line and 150 feet to north line.

Gulf Production Co.'s No. 3 R. W. Carter, Gerren Hinds Survey, is location 150 feet to south and west lines.

Gulf Production Co.'s No. 4 R. W. Carter, Gerren Hinds Survey, is location 450 feet to west line and 150 feet to south line.

Gulf Production Co.'s No. 4 J. J. Davis, A. Floyd Survey, is location 150 feet to east line and 350 feet north of No. 2 Davis.

Gulf Production Co.'s No. 1 M. J. Tiller, Gerren Hinds Survey, 150 feet to northeast corner of lease, has derrick up.

COMPLETIONS

Caldwell County

Gulf Production Co.'s No. 3 J. J. Davis, completed, is making 300 bbls.

Golden West Oil Co.'s No. 6 Wilson, A. Floyd Survey, 300 feet southeast of the No. 4, set casing at 2,287 feet and completed at 2,734 feet, 250 bbls. on the pump.

Lutex Oil Co., Inc.'s No. 5 W. F. Davis, A. Floyd Survey, 300 feet southwest of the No. 2, casing set at 2,200 feet, completed at 2,703 feet, making 600 bbls. on the pump.

Shell Petroleum Corp.'s No. 2 Malone, completed at 2,701 feet, bailing 800 bbls. oil and 300 bbls. of water.

Shell Petroleum Corp.'s No. 5 William Smith has been completed at 2,688 feet for 440 bbls.

The Texas Company's No. 4 Merriweather, 300 feet northeast of the No. 2 at 2,616 feet, making 187 bbls. in 12 hours.

Nueces County

Agua Dulce Oil & Gas Co.'s No. 1 Sanders, Benton Survey, 600 feet to north line and 1,980 feet to west line of Section 35 at 1,971 feet completed estimated 60,000,000-foot gas well.

Webb County

Magnolia Petroleum Co.'s No. 1 Benavides-Volpe, SE SW Survey 660, north of Magnolia-Cole Field, completed at 2,398 feet, making 50,000,000 feet of gas with 750 pounds rock pressure.

Foster Barnsley's (Barnsley-Scharff-Kirk) No. 4 de la Garza, Survey 335, Block 21, Carolina-Texas Field, completed at 2,072 feet, 50,000,000-foot gas well with 700 pounds rock pressure.

Zapata County

W. R. Duke's No. 3 Martinez, Block 22, Charco-Redondo Field, completed at 995 feet making 3 bbls. of oil and 10 bbls. of salt water.

ABANDONED TESTS

Bastrop County

Jake Jarmon's No. 1 Bennett has been abandoned dry at 1,614 feet in chalk topped at 1,606 feet.

Caldwell County

Rogers & Heep's No. 1 Forister, Thomas J. Halton Survey, at 1,658 feet is dry and abandoned in Edwards topped at 1,608 feet.

Duval County

Sun Oil Co.'s No. 2 Henne-Winch, Survey 250, Block 20, at 2,375 feet, has been abandoned dry.

Guadalupe County

Magnolia Petroleum Co.'s No. 1 M. Schubert is dry and abandoned at 2,362 feet.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, John McHenry Survey, 12 miles northwest of Edna, is abandoned dry at 3,020 feet.

Goliad County

Southern Crude Oil Purchasing Co.'s No. 1 J. E. Pettus, near Cabeza Creek, is dry and abandoned at 3,853 feet.

Booth McCarson and others' No. 1 Flake has been abandoned at 22 feet.

J. E. Alexander's No. 1 Berman, Goliad Townsite Survey, at 815 feet has been abandoned dry.

Webb County

W. F. Morgan's No. 1 Benavides, NE SW Survey 693, at 2,490 feet is dry and abandoned.

Magnolia Petroleum Co.'s No. 13 Yeager-Strohman, Share 5, at 4,942 feet is abandoned dry.

O. W. Killam's No. 33 Bruni, Block 64, is dry and abandoned at 2,225 feet.

Gulf Production Co.'s No. 2 M. J. Tiller, Gerren Hinds Survey, 300 feet west of the No. 1, has derrick up.

Gulf Production Co.'s No. 3 M. J. Tiller, Gerren Hinds Survey, 300 feet west of the No. 2, has made location.

Gulf Production Co.'s No. 4 M. J. Tiller, Gerren Hinds Survey, 150 feet to south line and 275 feet to west line, is location.

Gulf Production Co.'s No. 5 M. J. Tiller, Gerren Hinds Survey, 575 feet to west line and 150 feet to south line, is location.

Gulf Production Co.'s No. 1 J. D. Wright, Gerren Hinds Survey, is location 450 feet to south line and 150 feet to west line.

Humble Oil & Refining Co.'s No. 2 W. O. Allen is location.

Humble Oil & Refining Co.'s No. 4 W. O. Allen, Gerren Hinds Survey, 300 feet east of the No. 2, is location.

Humble Oil & Refining Co.'s No. 4 J. J. Davis, A. Floyd Survey, is location 300 feet north of the No. 2.

Humble Oil & Refining Co.'s No. 3 Moses & Baggett is location 300 feet north of the No. 2.

Humble Oil & Refining Co.'s No. 4 Moses & Baggett is location 300 feet west of the No. 1.

Humble Oil & Refining Co.'s No. 5 J. B. Tiller, Gerren Hinds Survey, 300 feet east of the No. 2, is location.

Medina County

Holt & Cromwell's No. 1 Mott, Survey 1,267, has been abandoned dry at 512 feet.

Duval County

Onyx Petroleum Co.'s No. 4 Krauther, Survey 250, Block 20, located 220 feet to south and west lines, is rigging up.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, J. S. Clift Survey, located 1,050 feet to west line and 150 feet to south line, has been spudded in.

Fayette County

Merritt and others' No. 1 Zvereck is location.

Guadalupe County

Magnolia Petroleum Co.'s No. 2 H. A. Cartier, Harriett Cottle Survey, 300 feet southwest of the No. 1, is location.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schreiner is location.

Kinney County

Lloyd Oil Co.'s No. 1 G. Bedell Moore estate, Survey 117, is location 1,320 feet south of center of north line.

Medina County

F. M. Cline's No. 1 T. J. Bendele, Survey 593, located 600 feet to west line and 150 feet to south line, at 815 feet is showing oil said to cover slush pit and will set casing.

W. M. Allen's (Webster) No. 1 Haegelin, Survey 579, J. Reed, 300 feet to center of north line, is drilling at 100 feet.

E. R. Thomas's No. 1 W. J. Conger, J. J. Keppler Survey No. 459, is location 200 feet to north and east lines.

Nueces County

R. & G. Corp.'s No. 1 Yakey, Section 5, Lot 2, is rigging up 150 feet to west line and in center of north and south.

R. & G. Corp.'s No. 1 B. F. Wolcott, Section 1, Benton pasture, 2,780 feet to east line and 150 feet to south line, is rigging up.

Webb County

Newton Drilling Co.'s No. 4 Bruni, Block 56, located 480 feet to north line and 250 feet to west line, is drilling.

Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Survey 754, Block 15, located 150 feet to south and west lines, is location.

Zavala County

Col. Ike T. Pryor's No. 2 fee on Pryor ranch is drilling at 1,075 feet.

CHAMBER TO CHANGE NAME

After functioning for 18 years under its present name, the Chamber of Mines and Oil, of Los Angeles will become known as the California Oil and Gas Association.

COMPLETE AUTOMOTIVE SERVICE

WILCOX

GASOLINE OILS

THE STANDARD OF WILCOX SERVICE STATIONS IS IN KEEPING WITH OUR POLICY OF GIVING THE PUBLIC THE BEST OF SERVICE AND QUALITY

H. F. WILCOX OIL & GAS CO.

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STATION NO. 1
Third and Denver
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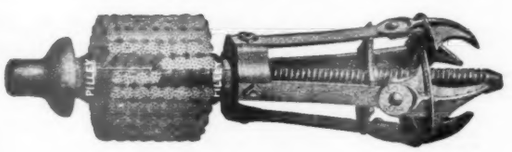
Sixth and Detroit
TULSA, OKLA.

TUBE LIFE IS CARE



Frequent use of a Pilley Combination Flue Brush & Scraper means taking good care of your boiler tubes and will prevent the troubles from soot and scales. The PILLEY with its adjustable claws and compactly filled brush will do the best job of cleaning you ever experienced.

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1. Greater Boiler Capacity
2. Dependable Steam Output
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5. Cuts Down Shutdowns
6. Makes Boilers Last Longer
7. Simple and Compact
8. Reduces Labor Costs
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Ask your jobber to supply you at $1.00 per diameter inch in sizes from 2 inch to 6 inches. We guarantee satisfaction.

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Eastern Office: 71 Fulton St., New York

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Combination FLUE BRUSH *and* SCRAPER

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PETROL PRODUCTS

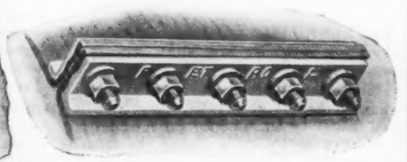
THE PETROL ROTARY BELT PUNCH

For accurate, easy and quick Punching of the Bolt Holes.

PETROL BELT
For Oil Well Drilling and Pumping

PETROL BELT CLAMPS

The most satisfactory clamp for joining Belting used in the oil fields.



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Main Sales Office: 38 Murray St., New York

CHICAGO OFFICE
345-359 W. AUSTIN AVE.

FACTORIES
EASTON, PA.

Natural Gasoline Manufacture

CALIFORNIA OUTPUT INCREASES SLIGHTLY

One hundred thirty-five natural gasoline plants in California, with a daily indicated capacity of 1,646,100,000 cubic feet, report a recovery of 49,842,000 gallons of natural gasoline from 36,019,033,000 cubic feet gas treated in December. This is an increase of 486 bbls. in daily average production.

Utilization of natural gasoline amounted to 1,305,338 bbls., an increase over November of 190,499 bbls. Daily average utilization of 42,108 bbls. was 3,827 bbls. less than daily average production of 38,281 bbls.

Stocks of natural gasoline at the end of December amounted to 1,221,766 bbls., of which 27,833 bbls. were reported by natural gasoline plant operators and 1,193,933 bbls. by refinery operators. This is a decrease of 118,624 bbls. under November stocks. This stock figure of 1,221,766 bbls. is approximately 29 days' supply at the current rate of consumption.

CALIFORNIA NATURAL GASOLINE PRODUCTION, DISTRIBUTION AND STOCKS
December, 1928

Production by Fields

Field—	Gas treated (M. cu. ft.)	Natural gasoline produced (gallons)
Fullerton	523,948	1,356,297
Midway	3,150,142	4,559,597
Huntington Beach	1,733,260	3,914,904
Long Beach	10,918,823	17,926,564
Richfield	1,162,450	1,576,785
Santa Fe Springs	4,087,205	5,886,873
Seal Beach	1,421,076	2,388,284
Ventura Avenue	7,987,679	5,504,150
All other fields	5,034,450	6,728,546
Total	36,019,033	49,842,000

Production

Type of plant—	Gas treated (M.C.F.)	Natural gasoline produced (gallons)	Gasoline recovery M.C.F. gas treated
Oil absorption	25,615,969	33,686,006	1.315
Compressor	260,673	256,171	.983
Combination comp. and oil absorption	10,142,391	15,875,849	1.565
Drip	.....	23,974	....
Total	36,019,033	49,842,000	1.384

Finished gasoline produced at plants—22,828 bbls.

Distribution

	Bbls.	Bbls.
Stocks first of month		1,340,390
Produced during month		1,186,714
Quantity mixed with crude or unfinished oils	128,898	
Used in blending at refineries	1,014,939	
Stocks end of month	1,221,766	
Used at plants, shortage and evaporation losses	9,349	
Balance	152,152	
Total	2,527,104	2,527,104

Stocks

	Gallons	Bbls.
Natural gasoline held by natural gasoline plant operators	1,168,988 or	27,833
Natural gasoline held by refiners	50,145,186 or	1,193,933
Total	51,314,174 or	1,221,766

ADDS TO OUTPUT

The Richfield Oil Co. added to its output of natural gasoline in California last week when it completed its third plant in the Long Beach area. The plant, which is the oil absorption type, has a rated capacity of 45,000 gallons daily. In addition to its three plants the Richfield company is operating a fourth plant in the Long Beach area recently acquired when the company purchased the properties of the Pan-American Petroleum Co. This plant has a capacity of 25,000 gallons daily.

The Richfield company expects to further increase its natural gasoline output during the coming year. The immediate construction of a gasoline plant in the Santa Fe Springs Field is under consideration.

AGAIN ESTABLISH NEW GASOLINE PRODUCTION RECORD IN DECEMBER

The natural gasoline industry closed the year of 1928 with the greatest production in its history according to the December report of the Bureau of Mines which was released during the past week. The report shows that the production in December totaled 165,000,000 gallons, or a daily average of 5,320,000 gallons. The previous peak was in November, when the production averaged 5,270,000 gallons daily. Consumption dropped off in December and as a result 8,562,000 gallons were added to storage.

Although the Government as yet has not announced its preliminary report for 1928, taking the 12 monthly reports as a basis, a total production of 1,764,100,000 gallons is indicated for the year. This is an increase of 137,200,000 gallons or 8.4 per cent over 1927. This shows that the increase was smaller in 1928 than in 1927 over 1926. The increase in 1927 was 270,100,000 gallons, or approximately 20 per cent over 1926. A large part of the increase in 1927 was due to the new plants in the Greater Seminole area. The production of Seminole and adjoining areas increased in 1928, but not as rapidly as in 1927.

Stocks of natural gasoline totaled 25,540,000 gallons on December 31, 1928, and 30,847,000 gallons on December 31, 1927. Thus, 5,307,000 gallons more natural gasoline was consumed in 1928 than was produced, indicating a total consumption for 1928 of 1,769,407,000 gallons. The following table summarizes the Government's report for 1928:

NATURAL GASOLINE, DECEMBER, 1928
(Thousands of gallons.)

	Natural gasoline: Production Dec., 1928	Production Nov., 1928	Production Dec., 1927	Stocks end of month Dec., 1928	Stocks end of month Nov., 1928	Blended motor fuel, December, 1928: Natur'l Naphtha gasoline used	Natur'l Naphtha or other oils used	Stocks end of month
Appalachian	10,600	9,200	10,000	2,436	2,032	121	162	234
Ill., Ky., etc.	1,500	1,000	1,300	284	281	2	2	7
Oklahoma	57,000	55,400	51,300	10,392	7,095	1,678	2,256	654
Seminole*	25,500	25,100	.....	2,220	2,019	475	1,052	299
Osage County	8,100	7,600	.....	2,892	797	19	12	4
Rest of State	23,400	22,700	.....	5,280	4,279	1,184	1,192	351
Kansas	3,300	3,200	2,700	955	892	30	1	7
Texas	31,200	30,400	27,000	8,125	3,747	440	472	156
Panhandle	12,300	12,100	.....	4,034	1,105	174	210	35
North Texas	4,200	4,000	.....	806	673	124	81	30
West Central	13,200	13,000	.....	3,044	1,835	111	141	83
Rest of State	1,500	1,300	.....	241	134	31	40	8
Louisiana	5,100	4,800	4,100	1,189	875	25	22	21
Arkansas	2,700	2,600	2,700	336	259	.....	.....	1
Rocky Mountain	3,800	3,900	2,800	654	642	.....	.....	.....
California	49,800	47,600	42,300	1,169	1,155	.....	.....	.....
Long Beach	17,900	17,200	.....	.....	.....	.....	.....	.....
Ventura Avenue	5,500	5,300	.....	.....	.....	.....	.....	.....
Seal Beach	2,400	2,400	.....	.....	.....	.....	.....	.....
Huntington Beach	3,900	3,900	.....	.....	.....	.....	.....	.....
Santa Fe Springs	5,900	3,900	.....	.....	.....	.....	.....	.....
Rest of State	14,200	14,900	.....	.....	.....	.....	.....	.....
Total U. S.	165,000	158,100	144,200	25,540	16,978	2,296	2,915	1,080
Daily average	5,320	5,270	4,650	.....	.....	.....	.....	.....

*Does not include St. Louis-Pearson and Maud districts.

A PRACTICAL SUGGESTION

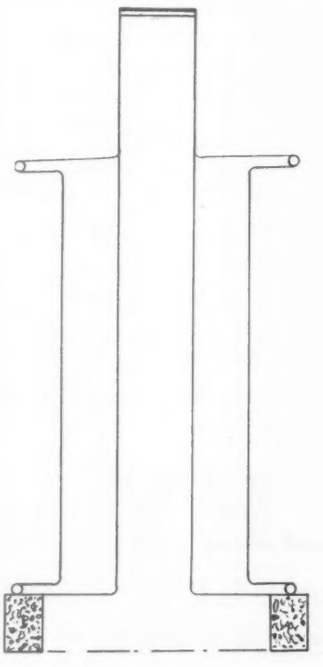
EXPANSION HEADS

The natural gasoline industry is gradually supplanting all equipment made on the job by fittings and the welding torch, by factory fabricated material. Since nearly every field has its individual characteristics, different problems are encountered and therefore standardized equipment is not always the most adaptable.

In this connection the welding torch is often indispensable. Fire stills, hot water heaters (for freezing expansion valves at a compression plant) dry stills, stabilizers, low pressure boilers, knockout boxes or preheaters are often economically made up on the job. The problem common to welding all of the above equipment where concentric pipes or tube sheets are used, is rupture and leakage during heating and cooling at the weld.

Welding sets up certain internal stresses and strains, so that if the temperature variation is very great, some provision must be made for expansion and contraction. The arrangement suggested here is to provide a larger head and to place between the plates a rod or piece of pipe. Obviously this will permit sufficient elasticity of ordinary expansion and contraction without causing any leakage.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.



EXPANSION HEADS

PANHANDLE INVENTORIES OF GASOLINE INCREASE

FORT WORTH, Tex., Jan. 25.—Although Panhandle led the Ranger district, its nearest rival, in natural gasoline production, the latter district shipped 1,000,000 gallons more than was shipped from Panhandle during the same period.

A search through records for the past few months reveals a record was established during December for the Panhandle in storing natural gasoline. The total output of those counties for that month was 13,393,891 gallons and stocks rose to 3,739,928 gallons, an increase of more than 2,500,000 gallons.

The Ranger district showed an increase by shipping 11,941,649 gallons. The Wichita Falls district reported a decrease in movement of the product as did the lone West Texas plant in Reagan County. In the former territory, 3,299,000 gallons were shipped in December against 3,621,000 during November, while Reagan County's shipments slumped off an even 100,000 gallons to 387,000 gallons during December.

Eastland County leads in shipments from the Ranger district, and the following is a table of natural gasoline production from that territory during December (data in gallons):

RANGER DISTRICT

Eastland County	5,275,452
Shackelford County	599,102
Brown County	706,523
Stephens County	4,631,956
Coleman County	32,512
Palo Pinto County	696,104
Total	11,941,649

Production by counties in the Panhandle was as follows:

Carson County	1,584,156
Gray County	2,340,102
Hutchinson County	8,410,512
Moore County	345,622
Potter County	100,510
Wheeler County	612,989
Total	13,393,891

TEXAS BUILDS PLANT IN KETTLEMAN HILLS FIELD

LOS ANGELES Calif., Feb. 2.—The Texas Company of California is making rapid progress with the new absorption plant which it is constructing in the Kettleman Hills Field of Kings County, California, in order to handle natural gas production of the Milham Exploration Co. The Texas Company recently purchased surface rights in the northeast quarter of the southeast quarter of Section 2-22-17, upon which this new natural gas gasoline plant is being erected.

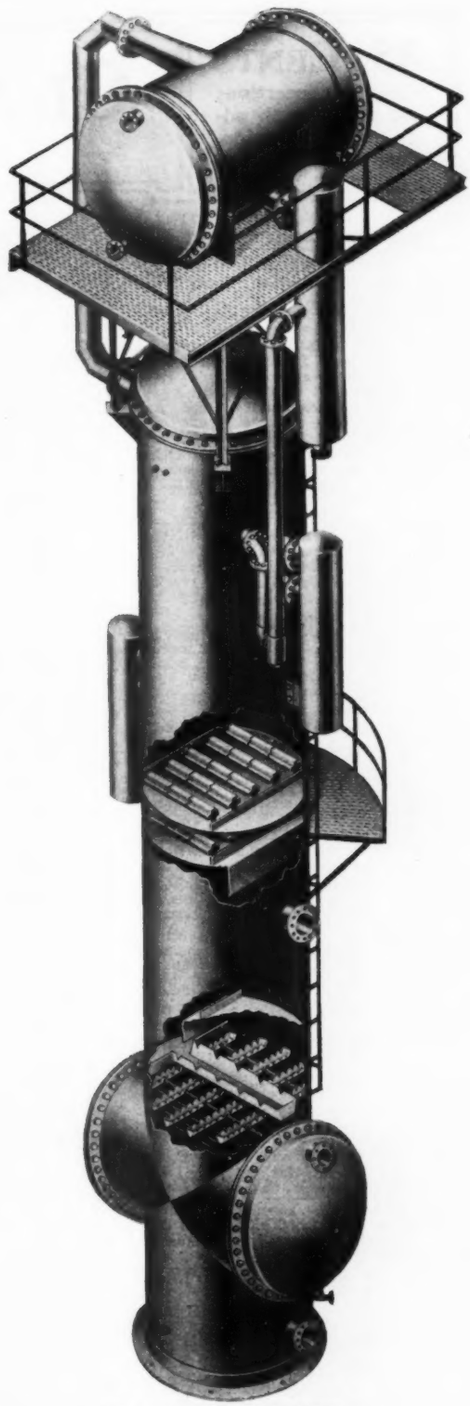
It was the original intention to have this natural gas plant in operation during the early part of January but the extremely large sustained production of natural gas shown by the Milham Exploration Co.'s discovery well forced engineers to revise the original construction plans. When completed this new plant will have a capacity of 40,000,000 feet of natural gas daily and will occupy about 10 acres. It will cost approximately $500,000 and will be constructed so that additional units may be added as needed.

BUYS OMAR PLANT

The Texas Company on February 1 acquired the natural gasoline plant of the Omar Gasoline Co. located in the northwest extension of the Burkburnett Field of Wichita County, Texas. The plant is located on the A. Michna farm near the Grandfield bridge of Red River.

The plant has a capacity of 13,000 gallons daily and has been in operation for several years. The gas is obtained from a large number of wells in that section which have been producing since the Burkburnett development of 1919 and 1920. The sale is said to have involved a cash consideration of $360,000.

ERECO FRACTIONATING STILLS



COMPLETE

Stripper, Re-boiler and Fractionator in One Unit.

COMPACT

Minimum Space Required.

EFFICIENT

Complete Stripping and Lowest Possible Steam Consumption.

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ERECO
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ENGINEERING, RESEARCH & EQUIPMENT CO.

Consulting, Research, Design Manufacturing, Construction.
Absorption Plant And Refinery Equipment

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MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

A FEW BARGAINS

35,000-bbl. Oil Storage Tank, First Class Condition, $2,750.

55,000-bbl. Oil Storage Tank. New—Immediate Shipment—Sacrifice.

7—500-gal. Unused Compartment Truck Tanks only $125.00 each.

2,000 to 20,000-gal. New and Used Storage Tanks.

Many other items you can use. Ask for bulletins.

ZELNICKER IN ST. LOUIS
Specializing in Oil Engines and Other Power Equipment, Rails, Locomotives and Cars, Steel Sheet Piling, Etc. for 30 years.

USED LINE PIPE AND CASING FOR SALE

250,000' 2" Line Used @ 9c.
40,000' 3" Line Used @ 18c
50,000' 4" Line Used @ 22c
10,000' 6" Line Used @ 40c
10,000' 8" Line Used @ 65c

Above pipe located in our yard for immediate shipment.

LOUISIANA IRON & SUPPLY CO.
2525 Mansfield Road
Shreveport, La.

FOR SALE—Six new 1928 model Topping Pony Ditching Machines, Choice of Boom. Guaranteed. Bargain. Specifications and photos upon request. Also two used gas engines 80 HP Miller, 80 HP Hall. Good condition. Shunk Mfg. Co., Bucyrus, Ohio.

FOR SALE: 15 miles 8-inch standard 29-pound wrought iron line pipe with recessed couplings, in No. 1 condition. Was used for high pressure oil line before being taken up recently. Located in Indiana. MAX ZEIGLER AND BROS., Muncie, Ind.

NOTICE—FOR SALE—EQUIPMENT

Humble refinery—Standard Oil product cracking plant. Wilson Refining—tank, stills, pumps, agitators, boilers. Pipe and connections.

Will buy salvage plants or pipe lines.

W. BOGART
Burkburnett. Tex. Phone 136

OKELL Drilling Rigs with drill pipe and tools, Steel Derrick and Crown Block. Immediate delivery. No. 3 National Portable Drilling Rig with calf and bull wheels, only drilled one hole. E. D. Taylor, 103 W. M. Garland Bldg., Los Angeles, Calif.

FOR SALE—One gasoline Star drilling machine, with tools, all in good condition. Can be purchased at a bargain. Address Box 25, Iowa Park, Texas.

BUY OR RENT USED PIPE
and Save the Difference.

15,000'— 5 3/16" Casing
10,000'— 6⅝" Casing
5,000'— 8¼" Casing
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We will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.

BRANCH STORES
Wichita Falls, Holliday, Vernon, Breckenridge, Pampa, Texas.
EASTERN HEADQUARTERS
Butler, Penna.
KEYSTONE PIPE & SUPPLY CO.
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FOR SALE—A NEW REFINERY in West Texas. Plant under construction and approximately 75% complete. Capacity 1,000 barrels daily. Practically all gasoline manufactured can be sold at tank wagon prices, in vicinity of refinery. Reason for selling, financially unable to complete same. A few thousand dollars cash will handle same. A real bargain and a money maker for right parties. Do not answer unless you have money and mean business. J. T. Henderson, Box 2161, Tulsa, Okla.

FOR SALE—EQUIPMENT

FOR SALE—Two 14 x 24—150 H. P. Duplex D. A. Cooper Gas Engines direct connected to Hall Compressors, inter and after coolers, all in first-class condition. Priced right. Detailed description and price on application. CLARENDON GASOLINE COMPANY, 66 Main Street, Bradford, Penna.

FOR SALE—Native rig bottoms and timbers sawed to order. Eclipse Saw Mill Co., General Delivery, Altoona, Kans.

FOR SALE AT A BARGAIN

One Class BB3 Ingersoll-Rand steam driven two stage air compressor having Corliss intake and Poppet discharge valves. Steam cylinder sizes 13" and 24" by 30" stroke, air cylinders 13¼" and 22" by 30" stroke, approximate displacement capacity 1,500 cubic feet. This machine is in first-class condition and ready for immediate shipment at a bargain price.

LANDRETH MACHINERY CO.
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WE SPECIALIZE on all sizes of used steel axles for forging purposes—cash buyers of scrap iron in carload lots. Harry Benjamin Equipment Co., 710 Buder Bldg., St. Louis, Mo.

TWO Muncie, 20 H.P. Crude Oil Engines with reverse clutches—never used—cheap for cash.

SOUTHWEST PUMP & MACHINERY CO.
2710 McGee Street, Kansas City, Mo.

FOR SALE—Native walking beams, oak pitmans, bolsters and dividers for drilling machines made to order. Send pencil or pen sketch with dimensions to Safety Pulling Machines, Independence, Kans.

FOR SALE

4,800' 6⅝" 20-lb. Used Casing.
2,200' 5 3/16" 17-lb. Used Casing.
4,000' 6¼" 13-lb. Used Casing.
20,000' 2" Used Line.
10,000' 2" Used Tubing.
55,000' 3" Used Line.
20,000' 4" Used Line.
1 Reid 15 H.P. Gas Engine.
1 Reid 20 H.P. Gas Engine.
2 Jones Double Eccentric Powers.
1 Paova Power.
1 Single Well Pumping Outfit.

STROUSE PIPE & MACHINERY CO.
435 East North Street
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BARGAIN TO GAS COMPANIES AND PRODUCERS

We have in stock for immediate shipment:

20 MILES 3-inch and 3½-inch O.D. PIPE.
60 MILES 4-inch O.D. PIPE.
8 MILES 6-inch O.D. PIPE.
12 MILES 6⅝-inch O.D. PIPE.

Pipe is plain ended in 30 and 35-foot lengths.

Other sizes in line pipe and casing from 2-inch to 15½-inch.

PRODUCERS PIPE & SUPPLY CO.
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GAS ENGINE GENERATOR SET BARGAINS

3—600 H.P. twin tandem Westinghouse direct connected to 500 K.V.A., G.E. 600 V. 3 phase 60 cycle Generators.

3—750 H.P. single tandem Westinghouse direct connected to 781 K.V.A., G.E. 600 V. 3 phase 60 cycle Generators.

These sets completely rebuilt by the makers.

In the very best condition—and priced to sell quick.

Switchboard equipment also available.

Engines and Generators can be bought separately.

ZELNICKER in ST. LOUIS.

FOR SALE—50,000 feet 2" Secondhand Pipe with first-class connections @ 7c. Large stock other sizes at proportionate prices.

TEXAS SUPPLY COMPANY
Houston, Texas.

FOR LEASE—Five 8,000-gallon insulated clean tank cars. H. A. Frame, 1539 So. Yorktown Ave., Tulsa, Okla.

FOR SALE—EQUIPMENT

FOR SALE—20 miles of 8-inch, secondhand line pipe with threads and couplings; weight 29 pounds to the foot. Also 10 miles of 6-inch, secondhand line pipe. All this pipe is in excellent condition and we have this pipe located in Wyoming. Will sell it at a bargain price. For further particulars, address West Ohio Pipe Co., P. O. Box 399, Lima, Ohio.

FOR SALE

1 twin cylinder 12×14 Up Right 100 H.P. Westinghouse Gas Engine, in good condition.

1—85 K.W.D.C., 110 V., 750 R.P.M. General Electric Generator, interesting prices. Write.

Taplin-Rice-Clerkin Co.
Akron, Ohio.

FOR SALE

We are dismantling our pipe line and have the following for sale for immediate delivery. Prices quoted on application.

3—120 H.P. Fairbanks-Morse Full Diesel Engines.

3—120 H.P. Miller Improved Gas Engines; 4 of these engines are new, only used a short time and all equipped with flange couplings; all equipped with necessary starting appliances.

4—18×4½ Nat'l. Transit Geared Pumps, Flange Coupling.

2—18×5 Nat'l. Transit Geared Pumps, Flange Coupling.

4—18×5×18 Nat'l. Transit Steam Pumps.

6—55 H.P. Donovan Oil Field Type Boilers.

5—70 H.P. Donovan Oil Field Type Boilers.

1—60 H.P. Oil Field Type Boiler.
5—10,000-Bbl. Riveted Steel Tanks.
1—10,000-Bbl. Bolted Steel Tank.
2—5,000-Bbl. Riveted Steel Tanks.
4—5,000-Bbl. Bolted Steel Tanks.
2—3,000-Bbl. Bolted Steel Tanks.
3,000 Ft. 2" Tubing.
15 Miles 2" H.P. Oil Line Pipe.
13 Miles 4" H.P. Oil Line Pipe.
10 Miles 6" H.P. Oil Line Pipe.
10—7½×3½×10 Nat'l. Transit Field Pumps.
2—10×3×10 Nat'l. Transit Field Pumps.
1—12×4½×12 Gardner Field Pumps.
1—20-Car loading rack, complete.

We also offer a large quantity of all kinds of high pressure gate valves, lock stops, fittings, etc. Address:

PANTEX PIPE LINE CO.
Box 637, Amarillo, Texas.

FOR SALE—4 New 40 H.P. Oil Country Boilers. Designed for 100 lb. working pressure, complete with usual fittings.

VERY ATTRACTIVE PRICE.
UNITED IRON WORKS, INC.
Tulsa, Kansas City, Mo. Dallas.

FOR SALE—Three strings of cable tools, with boilers, engines, bits, stems, bailers and all necessary small tools for operating the tools. Also about 60 joints of 2-inch pipe. Box 146, Cleveland, Okla.

FOR SALE OR TRADE—New 16x8x-12 Burnham Simplex Imperial pattern hot oil pump. Has been used only one week. Write Bluebonnet Oil Refining Company, Dallas, Texas.

BUSINESS OPPORTUNITIES

IDEAL LOCATION FOR A REFINERY

We are in a position to secure for responsible parties a refinery location on railway tract at a reasonable price; also, we are in a position to secure from 1,500 to 2,500 barrels of oil per day over a period. We have ample pipe line facilities for delivering the oil to the refinery site. Must be responsible parties.

BIG SPRING PIPE LINE CO.
Big Spring, Texas.

WANTED—Persons financially able to join in geologic survey (mines and oil) of Territory of Lower California, Mexico. For details address Albert de Baer, P. O. Box 892, Hollywood, Calif.

MR. INVESTOR, ask for our FREE folder on an outstanding oil investment for 1929. Trans-American Oil Corp., 407 Perrine Bldg., Oklahoma City, Okla.

BUSINESS OPPORTUNITIES

FOR DRILLING CONTRACT we offer ¾ interest in 80-acre lease in producing area Gray County, Texas, 5 miles south Pampa, half mile from Midwest's 1,500-barrel well. R. D. Davies, Box 1106, Amarillo, Texas.

I have signed contract to start drilling operations for shallow production in New Mexico, on a well-known geologist's recommendation and geology. Am going to sell only sixteen 1/64 interest in well and eighty acres that well is located upon and 10 leases in block. Information and geological report furnished on request.

C. L. FETTY,
Operator—Oil Properties,
Box 193, Roswell, N. M.

CAPITAL SEEKERS—Put your project before 260 livewire brokers—cost trifling. Details free. Amster Leonard, East Orange, N. J.

Reliable parites who will furnish very highest banking house reference, own two absolutely proven locations for big natural gas wells, located right on a pipe line, which furnishes gas to over sixty cities and towns.

We offer part interest in one or both these wells, for funds to help drill same. We only require $15000.00 for each well and locations are only about 300 feet from forty million foot gas well. We guarantee good commercial production of oil or gas before you pay any money. Address Box 572, Chickasha, Okla.

WANTED—To get in touch with Brokers and parties interested in handling blocks of acreage on structures defined by Nationally known geologist. Box C-774, The Oil and Gas Journal, Tulsa, Okla.

OIL IN SOUTH AMERICA. Gentleman with sound propositions, large areas close to existing pipe lines, wishes to communicate with parties interested. First class references. Address Box C-682, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Knoll Aircraft, Stearman Aircraft, other stocks. Schuyler Jones, John Corr, Kirkpatrick, other Royalties. Also leases and Whole Royalties. Sellers give prices and No. shares first letter. UNITED INVESTMENT CO., Brokers, 1011 Union Bank Bldg., Wichita, Kans.

WILL GIVE 4,000 acres in Concho County, Texas, for a small bonus and a well. Frank Smith, 4208 Wycliffe Ave., Dallas, Texas.

HELP WANTED

WANTED

Specialty salesman to sell belting and belt specialties, one having acquaintance in the fields preferred. Box C-742, The Oil and Gas Journal, Tulsa, Okla.

WANTED HIGH CLASS executive familiar with Mid-Continent oil field equipment. Must be mechanical engineer. Box C-755, The Oil and Gas Journal, Tulsa, Okla.

SALEMAN for Gasoline Drilling Engines to work out of Denver in Colorado, Wyoming, Montana & New Mexico. Must have previous experience in selling cable tool drilling equipment. Give full particulars. Address Box C-780, The Oil and Gas Journal, Tulsa, Okla.

WANTED—One Designing and Estimating Engineer, one draftsman and detailer for refinery work with large Mid-Continent Refinery. Prefer men with refinery experience. State age, education and detailed experience. Address Box C-783, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

EXPERT MACHINIST and Mechanic on installation and upkeep of field equipment, will accept position as supt. over equipment. Twelve years experience. Ref. P. O. Box 228, Aztec, N. M.

POSITION WANTED — Superintendent Natural Gas Production Transmission or Distribution. 12 years experience. Age 35. Now Employed. Married. Address Box C-781, The Oil and Gas Journal, Tulsa, Okla.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

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POSITIONS WANTED

RESIDENT OF TULSA desires to make connection with a reputable manufacturer to either sell or service their product to the oil trade. If necessary can furnish limited amount of capital, to establish permanent office and service department. References as to character and ability gladly furnished. Write Box C-782, The Oil and Gas Journal, Tulsa, Okla.

COMPETENT OIL REFINERY ENGINEER wants permanent position in responsible charge of general refinery engineering and development work. Mechanical engineering graduate and held responsible position for six years with large refinery in design and installation of complete refinery equipment. Has been engaged for some time in Research work in modern refining methods.. Reference and additional information furnished upon request. Salary, $4,000 a year. Will call upon request. Address Box C-763, The Oil and Gas Journal, Tulsa, Okla.

FIRST CLASS JOINT TURNER and all-around Oil Tool Machinist wants job; can go anywhere. Address Box C-768, The Oil and Gas Journal, Tulsa, Okla.

CALYX CORE DRILL EXPERT—15 years' experience; speaks Spanish and Portuguese. Willing to go anywhere. Tor O. Sjobom, 1611 Rose St., Berkeley, Calif.

WANTED—Position buying leases and royalties; thoroughly experienced; salary and commission basis. Best of references. Box C-773, The Oil and Gas Journal, Tulsa, Okla.

TRAFFIC MANAGER with long experience with leading Oil Well Supply Manufacturers, at liberty after March 1. Wants to locate in West or South. Willing to start at reasonable salary and let results care for future. Box C-752, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED—11 years' experience as Clerk, Secretary and Treasurer, producing Company. Capable of handling office or field; 31 years of age. Former and present associates as references. Box C-771, The Oil and Gas Journal, Tulsa, Okla.

PURCHASING AGENT with four years experience buying Oil and Gas and Natural Gasoline Supplies capable of handling Buying, Storekeeping, Traffic and Transportation Departments, will consider change to reliable and growing firm. Any place in Mid-Continent Field. Box C-770, The Oil and Gas Journal, Tulsa, Okla.

LEASES—PRODUCTION

WILL LEASE—160 acres close to Pecos Valleys Oil Co. well, North Pecos County, Texas. Owner, 1232 W. 45th St., Oklahoma City, Okla.

RED HOT

Lease W½ Sur. 208 Blk. D, Yoakum Co., Texas $5. Lease paid up 10 years and half royalty $15 per acre. Callahan and Jones County royalties. Drilling blocks.

W. HOMER SHANKS
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CALIFORNIA OIL POSSIBILITIES
SOUTH OF TULARE, CALIFORNIA

160 Acres highly diversified ranch surrounded with lands now leased to several Oil Companies. Priced at this time only slightly higher than its agricultural value.

FRED B. FOX
206 Cory Building, Fresno, California.

PONTOTOC AND COAL Counties Leases and Royalties. Drilling Blocks. Write us. Wilson and Lain, Ada, Okla.

ATTENTION
LEASE BUYERS AND INVESTORS

We represent hundreds of California owners of New Mexico State Oil Leases in the trend of development and offer some wonderful buys in Lea, Eddy and Chaves Counties. Barnhart-Powers, 1404 Franklin St., Oakland, Calif.

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Choice leases; also large tracts open for drilling propositions. For reasonable prices and a square deal, write E. Bacon, 17006 Turner, Detroit, Mich.

LEASES—PRODUCTION

FOR SALE—Lea County, New Mexico, 40-acre lease, SW¼ NW¼, Sec. 34, Twp. 18s, R. 37e; $200 per acre cash and ⅛ royalty. Also 40-acre lease, SE¼ Sec. 25, Twp. 17s, R. 36e; $100 per acre cash and ⅛ royalty. R. B. Coyle, 2215 Beechwood Blvd., Pittsburgh, Penna.

415,000 ACRES NEW MEXICO, prospects for oil and minerals. Also Texas ranches. Box 653, Kansas City, Mo.

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

WILL LEASE 1,920 acres solid body being Section 1,223, 1,224, N ½ 1,222 and N ½ 1,225, Reagan County, Texas. Want $1.00 acre bonus and deep well commenced soon. E. Fackler, Manchester, Kans.

ATTENTION BROKERS EVERYWHERE
Investors' Opporunity

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WINKLER COUNTY PERPETUAL ROYALTY
FULLY PARTICIPATING

We sell and deliver as low as one Royalty and Mineral acre up to Two Hundred and Forty acres under all Sections, also 3-4-5-6-7-15-16-17-24-25-38, Block B5, Section 5, Block B-11. Also under Sections 23-25-38, Block 26.

Prices and terms upon application.

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IF YOU
DESIRE THE OPPORTUNITY TO SPECULATE
I OFFER 1,280 WILDCAT LOTS
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All surveyed and platted, located in the NW ¼ Section 5, Block B-5.

Half mile west Boline well in Section 4.

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Will deliver Warranty deed to each lot. Abstractors Certificate Title.

Sell a single lot, size 50 x 140 feet, if desired.

THE PRICE
$39.50 each
Easy terms to purchasers.
For further information I refer you to any up-to-date

WINKLER COUNTY MAP
If you are interested in buying

Address
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Box 762
San Angelo, Texas

REAL ESTATE MEN AND AGENTS WANTED—Agents, salesmen and real estate men to handle lots and acreage in the townsite of Chula Vista, Hot Springs County, Arkansas, on the U. S. Highway No. 70 near Hot Springs, which is a nationally known resort in the great mineral, oil and gas district of Arkansas. Millions being spent by Arkansas Light & Power Co. for a dam which will make a lake over 20 miles long. Chance for Silver, Lead, Zinc, Oil, Gas and other minerals. Oil test to be made on townsite. Lots $25 to $100 each. Write for maps and information.

Chula Vista Townsite Co.,
625 Central Ave.,
Hot Springs, Arkansas

BUY DIRECT FROM OWNERS in Southwest Texas, large Drilling Block, Paid-up leases, or Ranches in fee. On excellent structures. Geological and Engineer's Reports, Abstracts, etc., furnished responsible people free. Write us what you want.

..THE PETROLEUM TRUST CO.,
Travis Bldg.,
San Antonio, Texas

LEASES—PRODUCTION

WINKLER—PECOS COUNTIES
Leases and Royalties.
W. S. PATTERSON
Pecos, Texas.

I AM in the market to buy Oil and Gas Leases and Acreage on good structures. W. W. Ogden, 1203 2nd Ave., Charleston, W. Va.

$3 to $5 per acre for West Texas land with Oil and Mineral right 40 acres up. New Mexico oil leases. Winter garden lots and truck farms on easy terms; agents wanted. A. Poe, 829 Wilson Bldg., Dallas, Texas.

LEA COUNTY, NEW MEXICO
Perpetual Royalties.
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Pecos, Texas.

WILL BUY New Mexico oil leases. Have for sale perpetual mineral deeds, under Major Oil Company leases, Lea County. Write MONARCH INVESTMENT COMPANY, Roswell, New Mexico.

MUSKEGON, MICHIGAN

OIL LEASES—31 acres also 12 acres near production, price reasonable; 4,000 Acres S. E. of field on structure, $1.00 per acre—6 months to drill. Full information gladly furnished and free about Michigan field. Wm. J. Wilson, 922 Majestic Bldg., Detroit, Mich.

OLD DUNBAR STRUCTURE: Decatur County, West Tennessee, located and mapped by H. D. Easton, one of the best Geologists in Southwest who says it is VERY PROMISING and advised drilling. Several major operators had best geologist to work this same structure and all highly endorse it as good. Standard of La., drilling on this structure: Our own well over 600 feet showing promising. If you want in on EXTRA GOOD PROSPECTIVE field we advise get this one. Choice acreage paid up five years at right prices. Write, wire or better come and see us quick. CHESTER COUNTY OIL CO., Inc., Henderson, Tenn.

SOUTHEAST NEW MEXICO

Leases, royalties and drilling blocks in Lea, Eddy, Chaves, Roosevelt, Curry, DeBaca and Guadalupe counties. Prompt, accurate service. F. S. Blackmar, Inc., Roswell, New Mexico.

ATTENTION, brokers and investors; Write for our list of oil leases and oil royalties in Pontotoc, Seminole and adjoining counties. Bowles and Smith, First National Bank Bldg., Ada, Okla. Phone LD35.

RECENTLY ACQUIRED approximately 7,500 acres on structure, T. 6 S., R. 15 W., Osborne County, Kansas; for sale or available for drilling contract. Golden Exploration Co., 538 First National Bank Bldg., Denver, Colo.

I HAVE VERY PROSPECTIVE WELL blocked Oil & Gas leases in western Michigan and will sell a few interests, based on cost of drilling test wells. Unusual opportunity, no stock for sale. Best of references furnished. Box 256, Mansfield, Ohio.

HAVE 25 ACRE lease offsetting gas well shallow drilling. Give half interest for well. Box 412, Muskogee, Okla.

120 ACRE LEASE on Wilcox structure, Bald Hill District. Want drilled. Box 412, Muskogee, Okla.

SEMINOLE CO. new 5 yr. lse. NW¼ Sec. 4-10-6, drilling wells close. $62.50 per acre. Wm. Madgett, Hastings, Neb.

WINKLER AND PECOS Counties, leases and royalty New Mexico Royalty. W. H. McLeod, Box 653, Kansas City, Mo.

FOR SALE—I own 1/64 interest royalty rights on 640 acres in Edwards County, Texas. Survey 64, Block 1, Certificate 1/115. G. W. T. and P. Ry. Co. Will sell all or part acreage for $1.00 per acre. Your opportunity. O. Sundine, 1926 Belle Ave., Davenport, Iowa.

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633, Pecos, Texas.

LEASES—PRODUCTION

LEASES AND ROYALTIES

Close in to production, Sedgwick and Harvey Counties, wire or write. Southwest Investment Co., 205 Orpheum Bldg., Wichita, Kans.

TEXAS
Leases and Royalties,
Drilling Blocks,
Central and Southwest Texas,
Gulf Coast.

In the play now—Bastrop, Caldwell, Guadalupe, Gonzales, Wilson Counties.
J. S. JONES,
Tel. Bldg. Phone 351.
LULING, TEXAS

DRILLING BLOCKS
10-YEAR PAID-UP LEASES

Sutton County, Texas, 6,880 acres, $1.50 per acre. Edwards County, Texas, 8,960 acres, $1.75 per acre. Schleicher County, Texas, 11,000 acres, $1.50 per acre. Favorable geological report. Offered subject confirmation. W. T. Doyle, Southwestern Life Bldg., Dallas, Texas.

FOR SALE—A 1,000-acre lease with 3 good producing oil wells near the center of the acreage, and 1 good gas well on the Northwest; 1 Star Drilling Machine and tools complete. Also one-half interest in a 100-acre lease with 5 wells, well equipped. Unlimited opportunities for development and more wells. This must be sold within 30 or 40 days. Excellent reasons for selling. Will stand fullest investigation. Address John Dillon, Rocky Branch, Kentucky.

ROYALTIES—PRODUCTION

PERPETUAL DEEDED ROYALTIES
Winkler, Loving, Ward, Lea, Pecos Counties. J. R. Haynes, Grantville, Kans.

WILL BUY small producing royalties or undeveloped royalties on good geology. Box 544, Dallas, Texas.

WILL SELL 4,500 shares Royalty Corporation stock for $1.25 per share. This stock at the above price will yield 1 per cent per month. Said company has just paid its 68th consecutive monthly dividend. Address Tom Hughes, P. O. Box 458, Dallas, Texas.

ROYALTIES, Winkler County, Texas. 40-acre tracts or section spreads. Harry Haynes, Grantville, Kans.

WANTED

ROYALTY — SPREAD

FROM

$1,000,000 to $3,000,000

PURCHASE

under development by major companies. Present income must exceed Two Hundred Thousand or more annually. If possible submit complete data with first letter.

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FOR SALE several small tracts producing "Royalty" priced from $750.00 to $6,000.00. Address W. M. Gallagher, Gen. Del., Tulsa, Okla.

WESTERN OKLAHOMA royalty ahead of the drill. Inquiries invited. Joe P. Crawford, Petroleum Bldg., Oklahoma City, Okla.

ROYALTY—40 acres, Lea County, New Mexico; 2½ miles from wells drilling; $2.50 per acre. W. H. McLeod, Box 653, Kansas City, Mo.

WINKLER COUNTY ROYALTY $5 PER ACRE BASE. Under major company lease. Other royalties under or near production. Write for list. Box 462, San Angelo, Texas.

FOR SALE—MAPS

NEW MAP OF MID-CONTINENT OIL FIELDS, suitable for pocket or desk top, shows counties and producing areas in Oklahoma, Kansas, Texas, Arkansas, Louisiana and Eastern New Mexico. Postpaid for $1. Kelley Map Co., P. O. Box 1773, Tulsa, Okla.

Additional Classified Wants on Page 121

Big Chicago Demand for Furnace Oils

Difficult to Get Enough to Meet Requirements. Advances Being Paid. Many Distributors Double January Business

By J. B. Waldo

CHICAGO, Feb. 4. — The active demand in this market is for the furnace oils. It is difficult right now to get enough of the clean sweet oils with a low flash to meet the demand. Sellers here state that their morning mail was filled with orders for distillates, gas oils and the lighter fuel oils and that reasonable advances, and some that seem almost unreasonable except that the demand is so active, are being paid without objection so long as the delivery is assured. Sales of straw distillate were made today at 4⅛ cents and of zero dark gas oil at 3¼ cents. Straw gas oil is very scarce and most sellers have ceased to name a price on the 28-30 fuel as they have none and none is now available. The statement was made that, if obtainable, this grade of fuel oil would be worth today in this market $1.25. Many of the leading distributors have done double the business on furnace oils during January that they did during the same month a year ago. Some refiners who have been large sources of supply, but are now out of the market, state that if the weather should turn mild they might have some oil, but not of all kinds, by the middle or latter part of this month, but if the weather continues cold it will be after the first of March before they will have any material to offer.

Prices Strong

Prices on all kinds of furnace oil are very strong and more cold weather would result in some further advances, although distributors have ordered very freely and many have supplies ordered ahead, but which are slow in being shipped.

The gasoline demand was very light on Monday, only occasional cars, with more requests to defer deliveries than orders for shipment. The U. S. Motor gasoline was quoted at 7 cents by major refiners, while others were offering at 6¾ to 7 cents. There were some evidences of a greater desire for orders by some refiners, and some U. S. Motor gasoline was offered out of Oklahoma at 6⅝ cents and from West Texas at 6⅜ cents, both Group Three basis. With roads as bad as they are from ice in the major portion of the territory and from deep snows in the northern parts, the jobbers are doing less than one-half their usual business and do not need gasoline. In the higher gravities the 400 endpoint was less firm and the 375 endpoint firm. The demand was very light for the higher gravities. Kerosene was in light demand but steady as to price. Industrial heavy fuels were practically unchanged in prices here, although some refiners are asking more money. The spot demand for heavy fuels was light on Monday.

Little Gasoline Business

The action of the major refiners in reducing their spot prices 1 cent a gallon to 7 cents on the U. S. Motor grade did not bring them any marked increase in sales and they continued to report the immediate business as light. This is a condition due to the very severe winter and the resulting bad roads. Distributors in many cases say that their sales are at a lower level than they have been for years. They are selling little gasoline and their purchases reflect the amount of their sales. Quite a number have reduced the takings on contract and have asked that scheduled deliveries be held up. Marketers and smaller refiners who sell direct to the jobbers in tank car lots have also done but a light business so there has been really little demand in the market. Orders placed have in many instances been for immediate delivery indicating that stocks were low in the tanks of the buyers of these cars. It is believed that generally country stocks of gasoline over the territory are at a very low point. Some of the sales offices here have made more or less complete surveys and this is their report of conditions as they find them.

In the absence of any active demand the market has shown little price competition. The major refiners were holding for 7 cents which some of the sales managers claim will be their low price for this season. They argue that late in this month or early in March there will be some demand from the larger distributors for gasoline to fill their storage. Also that there will be a much larger demand from exporters. It is admitted that as the result of the small consumption, there has been some increase in stocks at the refineries but they say that it is only the small refiners who operate with limited capital and small storage who will be in need of orders and that the major operators will be willing to add to their supplies in their own tanks and carry more gasoline as a reserve for their own stations and contract customers whose takings will be greatly increased as soon as the spring season opens. Marketers as a rule held their price at 7 cents, a little business going at 6⅞ cents and only occasionally did a buyer claim that he could fill his needs at 6¾ cents. Most of these prices were quoted direct to the trade by refiners. West Texas gasoline was occasionally offered for resale at 6⅝ cents and direct at 6⅝ cents, based on Group 3.

Blending Habit

There was very little activity in the demand for the higher gravities and prices were easy. Some refiners, not many in fact, but here and there a refiner who was overstocked with some of the higher gravities named quite low prices in the hope of securing some additional orders. One Oklahoma refiner has a quantity of 64-66 390 endpoint on which he quoted for resale 7⅜ cents and other occasional prices were named by refiners which were lower than the regular market for these grades on which they wanted orders. Jobbers through this territory seem to have acquired a blending habit. There is a steady demand for natural gasoline from the distributing trade and the efforts of the manufacturers of natural gasoline to educate the distributors in its use has had some fruit. Some of the Texas gasoline is really ripe for such treatment. If a jobber can buy the Texas product and by the adding of 12 per cent of natural gasoline raise the gravity from around 55 gravity to 58-60 and at the same time give the blended product better starting qualities than the original and as is claimed than even the regular U. S. Motor grade, he is very likely to experiment with a larger percentage of natural gasoline and be able to secure his higher gravities at the cost of U. S. Motor or even less when the prices of the two products blended are one or both sufficiently low. Then the antiknock gasoline have to some extent surplanted the higher gravities.

There is no observable change in the situation to the east of the Indiana line or in eastern Michigan. Ohio is still the dumping ground of the refiners from all sides except the north where the lake gives some protection. The open price of the Standard Oil Co. of Ohio for gasoline delivered in tank cars last week was 10½ to 10¾ cents according to delivery. The new tank wagon price is 17 cents but there are discounts of 2 cents per gallon allowed to dealers and on commercial accounts, so that tank wagon buyers for resale and large users have a spread of 4 cents below the service station price. It seems impossible for the leading sources of supply to make any move or adopt any policy that improves the situation. This is in part due at least to the freight rates which open up the state to distant refining centers and enables them to make of it a place to sell their excess output.

Local exporters seem confident that they will have some good orders at about the regular time. Europe which is our chief export customer enjoys the same season as this country. The present demand for motor fuel is light but the time should come shortly when the European dealer will begin to accumulate some supplies for spring and summer.

Kerosene Situation Better

Kerosene has held its own and in some cases has even looked a little better. Some refiners who three weeks ago sold to the trade at 4⅞ cents and for resale at 4¾ cents are now asking 5¼ cents. Considerable buying in the field has prevented any accumulation of supplies and some distributors have begun to accumulate stocks of kerosene in advance of the spring demand. This demand should be something larger than a year ago for the manufacturers of tractors report large sales of their equipment which means more tractor fuel consumed. Many farmers prefer to use gasoline in their tractors as it gives then a quicker start. If the prices of kerosene and gasoline are not too wide apart they use the latter. Some of the states refund the tax paid on gasoline used by tractors. Others do not. Some states which do not refund the tax paid on gasoline used by tractors will on the fuel used by threshing machines. The logic of these regulations is not plain but in states where there is a tax which is not refunded kerosene is bound to be the fuel, in others it depends on the comparative prices of the two fuels. It will be remembered for several years, kerosene has advanced sharply from the beginning of the tractor season up to the beginning of May or some years a little later. The season is for about two months and ends quite abruptly so that the buying for this demand is conservative after the first rush is over. Some of the better tone in the kerosene situation may be due to the very active demand and the limited stocks available for distillates.

Furnace Oils Active

The demand for all kinds of furnace oils was very good last week. The chief activity of the sellers was not to get more business but to secure deliveries on orders already taken. Additional refiners dropped out of the market, reporting that they were oversold and delivering from daily production to their own stations or on previous orders. Distillates were scarce in the desirable grades and some sales were made of the 38-40 straw distillate at 4 cents which seemed to be the high of the market last week but which may be passed if the weather shows no let up to allow the refiners to catch up on shipments and the distributors to accumulate some stocks. The Shell refineries which have been the leading source of supply for many buyers in this market are behind on deliveries and an executive stated that they saw no chance of their having any product to offer buyers so long as the cold weather lasted. Even the Standard Oil Co. is reported to have bought a little distillate but probably not for its own stations.

Gas oils are in just about the same position as distillates. Refiner after refiner when asked for a price on gas oil has replied that they were all out, supply entirely gone, and the like. It is even stated that entire districts such as Shreveport are without any supplies. Some refiners have stated that during the last few days orders have piled up on them faster than they can produce the oil. Practically anything with a usable flash is being taken. A sale was made of 30-32 blended fuel oil at $1.26 a barrel. Refiners have been offered as high as $1.15 for just a car or two of 28-30 fuel oil that the buyer must have and told the seller that they would be glad to fill the order at the regular price but that they did not have even a single car that he could sell at any price. Some buyers with a good outlet buy all that the seller has or will sell to them. The man who hesitated last week about an order was not the buyer but the dealer as many of them were close to being oversold and did not know where they could buy additional quantities or the prices that these would cost them. It is needless to state that the market for distillates, zero gas and fuel oils is very strong if the oil is of such a character as makes it possible to use the material for domestic burner oil.

Heavy Fuel Oils

The demand for the heavy fuel oils is also quite large but supplies are in better shape on the lower gravities although low in sulphur material with a low cold test is none too plentifully offered. The present demand is active as the consumption for heating purposes is large right now and this is added to the regular quantity used for manufacturing. Many of the largest consumers have long time contracts and are out of the market at present, others are drawing on stocks but there is a steady demand from the buyers who supply themselves from month to month. Quite a number of railroad contracts are up for renewal. The roads have in several instances carried over enough fuel oil to last them for a little while so they are not closing their new contracts as rapidly as the sellers would like to have them. The outlook continues favorable for a large use of fuel oil during the current half year. There has been little variation in prices quoted but there has been less quoting of prices below the usual market, due in some part at least to the lack of available supplies at former low prices. The low prices and the large stocks of fuel oil have determined several refiners to put in cracking plants. If there were only a limited supply of fuel oil this would in time result in a decrease in the supply of fuel oil and a large increase in the output of gasoline which might be even as bad for the refiners as a low price to move their fuel oil. Aside from the railroad contracts there are no big deals pending in the fuel oil business here. Now is the period of largest consumption. The buying has for a great part been done for the present time.

Lub Oils

Very little present movement is reported in lubricating oils but refiners are well booked ahead on every kind of stock but neutrals. Prices for bright stocks were very strongly held last week although the business was light. Compounders are busy with their preparations for the coming auto season but state that their present business is light. All look forward to a very good season with firm prices. The industrial demand is running along very satisfactorily as to the amount of the business and although some complaint is made regarding the cutting of prices the competition from a price standpoint does not seem to be quite as severe. Some refiners are pushing their still blended oils very strongly and quite a quantity of the product from the vacuum still

(Continued on Page 121)

Eastern Oil Market Price Trend Lower

Inclement Weather Holds Down Gasoline Consumption. Tank Wagon Competition Keen. Foreign Demand Shows Decline

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 4.—Further irregularity has developed in East Coast refined products markets this week, and the price trend is still toward lower levels. Tank-wagon gasoline prices are lower, and there are indications of a forthcoming break in the tank car price structure. Lubricating oil quotations are again lower, and further declines have materialized on paraffin wax. Fuel oil is rather soft, but no price revision has been made.

Export markets continue to present a strong front, due principally to the influence of the export corporation. There has been a perceptible falling off in the volume of export sales of both gasoline and kerosene since the mark up in quotations a fortnight ago.

Gasoline consumption throughout the East Coast zone has been adversely affected again this week by a continuance of the cold, stormy weather which set in during the closing half of January.

Tank Wagon Competition

Considerable competition in tank wagon gasoline marketing operations is reported in New York and New England. Standard Oil Co. of New York, effective January 31, reduced both tank wagon and service station prices 2 cents a gallon in New York State, above Peekskill. This takes in virtually the entire State, with the exception of New York City, Westchester County, and Long Island. At the same time the company reduced tank wagon and service station prices 1 cent per gallon in Vermont. While the revisions were made without comment, it is understood that they were made to meet competition. A number of marketing interests have been cutting prices in the areas affected, and it is thought probable that readjustments in other sections of the East may be necessitated shortly, current reports indicating that there is considerable irregularity in gasoline markets in other sections of the East.

Tank Car Gasoline

Leading refiners continue to quote U. S. Motor at 10¼ cents a gallon here, but considerable business is going through at 10 cents a gallon in some cases. While marketers are optimistic regarding maintenance of the 10¼-cent basis, it is evident that the market is due for another general downward revision unless consumption should show an unexpected improvement within the next fortnight.

California U. S. Motor is meeting with a good movement in the local market, holding at 10¼ cents a gallon. A cargo of 80,000 bbls. was reported sold this week at 7½ cents f.o.b. Pacific Coast terminal, which would figure out about 9 cents a gallon laid down at New York. Since that sale, however, the market has stiffened materially, and it is currently reported that nothing can be bought in California for shipment East under 8 cents per gallon.

Refiners are expecting some improvement in the market situation here once the export market becomes thoroughly stabilized at the revised price basis, and buying for shipment abroad again gets under way in normal volume. For the past fortnight, however, export sales have been rather slow and considerable quantities of gasoline which normally move into export channels have been "backing up" in the hands of refiners. This situation is but temporary, and refiners are looking for early relief.

Kerosene

Cold weather throughout the entire territory has stimulated demand for kerosene materially this week, and refiners report a heavy movement in both tank car and tank wagon departments. In the jobbing market, water white appears firmly established at 8½ cents a gallon, the interest which had previously been holding at 9 cents having revised its quotation down to the general market. Local refinery terminals are showing a heavier tank car movement of kerosene this week than during any similar period in the current season. Winter has struck the East Coast area with a vengeance, and many consumers have been supplementing their regular heating plants with kerosene heaters, making for a heavy drain on stocks.

The tank wagon market is reflecting the increased consumption of kerosene fully as much as the tank car division of the trade. While marketers in this area have been doing a consistently good business in the country territory for the past two months, this activity is now being paralleled in their city trade. It is evident from the current volume of business reaching the refiners that many consumers have resurrected their old kerosene heaters and put them back into service. The tank wagon market continues firm at 15 cents per gallon, to store. Most of the marketers and refiners operating gasoline filling station chains are also distributing their kerosene through these stations, and report that sales from these distributing points constitute an ever-increasing factor in their aggregate kerosene gallonage.

In addition to the heavier local kerosene buying this week, refiners have noted a perceptible quickening in export demand for burning oil. This is tending to stiffen the market situation, although leading interests here do not contemplate any higher market unless the spell of unusually severe weather should be prolonged for a considerable spell. Current refinery holdings of kerosene are reported adequate for the present needs of the trade, although it does not appear that refiners in this area are burdened with excessive stocks of this oil at present.

Lubs Lower

Cylinder oils are showing continued weakness, and volume of trading continues small. Steam refined cylinder stocks, 600, are one-half cent lower at 30½ to 31 cents a gallon, with 650 off 1 cent at 36 to 37 cents a gallon. On 600 Pennsylvania flash, the market is quoted at 38 to 39 cents, a reduction of 1 cent per gallon. Bright stocks are 1 cent lower at 46 cents a gallon for the light and 45 cents for the dark.

There is no change reported on red or pale oils. Business on these oils have been holding up fairly well, although refiners report that orders are still confined to small quantities for immediate shipment, consumers continuing in the market right along.

Export demand for cylinder oils has fallen away considerably and the domestic demand is likewise of disappointing proportions this week. Buyers appear to feel that bottom has not yet been reached on the current price movement, and they are endeavoring to run on their present holdings as long as possible. This, of course, will mean a heavy buying movement when they are forced into the market for replacements, but this contingency appears rather remote at present. Consumers in most instances are reported covered a week or two ahead on purchases made during the early part of January.

Paraffin Wax

Buying interest has fallen away materially this week, and prices are again lower. With the market for crude scale declining steadily, fully refined grades have reflected this weakness. Quotations this week are one-eighth cent per pound lower on all grades at 5⅜ cents for 120-122 a.m.p., 5⅝ cents for 125-127 a.m.p., 6⅜ cents for 130-132 a.m.p., 7⅛ cents for 133-135 a.m.p. and 7⅝ cents for 135-137 a.m.p. The decline in the latter melting point is the first in several months, the market having been exceptionally strong under limited offerings.

Domestic consumers are reported well covered on wax bought at higher prices, and are remaining almost entirely out of the spot market this week. The same is true of the export trade. Buyers are looking for further declines in refinery prices, and are unwilling to book future business at current price levels.

A cable from London this week reports a reduction of one-eighth to one-fourth cent per pound in all grades of refined paraffin wax in British markets, and this development has tended to soften further the local situation. According to reports from the Gulf, paraffin has softened at that point in sympathy with the local market position.

Petrolatum

Spot inquiry has fallen off somewhat, but prices are still well maintained. Export buyers are holding off the market, and foreign demand is now running considerably below normal for this season of the year. Sellers are looking for an early recovery in demand for petrolatum for shipment abroad, however, and anticipate a heavy volume, in view of the fact that considerable buying is being withheld by foreign operators. It is believed in some circles that the dearth of export inquiry may be attributed to current weakness in other refinery products, which has created the impression abroad that petrolatum quotations in turn are due to yield. This far, however, domestic refiners have shown no inclination to shade.

Pharmaceutical interests continue heavy buyers of spot petrolatum, and sellers anticipate continued activity in this direction. Refiners are carrying a good volume of contract business on their books, and heavy withdrawals on these orders are reported. Much of the current demand continues to center on the white grades.

Fuel Oil

Refiners have made no change in their schedule on bunker "C," but the market is far from strong. Supplies of fuel oil at East Coast refineries are still top-heavy, and while large furnace oil sales are tending to aid the situation somewhat, holdings are greatly in excess of requirements, and are being added to steadily. The situation has reached the point where Mexican operators are no longer able to compete with West Texas and Venezuelan fuel oils in East Coast and Gulf markets, and a material falling off in the movement of Mexican oil is consequently in progress. This will improve the statistical position of the market a little, but there is room for still further improvement.

Bunker "C" is quotable at $1.05 per barrel, bulk f.o.b. Bayonne terminals, with the usual 5 cents lighterage charge for delivery alongside within the harbor limits. A little price shading has been done on industrial business in the East Coast area, but it is reported that all of the leading interests are holding firm in the marine end of the business.

There has been no change in the industrial fuel oil situation. Consumers are drawing oil against standing contract in substantial volume, but are seeking concessions in their spot purchasing operations. Heavy oil continues to move well on furnace oil contracts.

East Coast refiners are believed to be planning to utilize their cracking equipment more extensively this year, in an effort to obtain maximum gasoline yield with minimum out turn of fuel oil. This program, if carried through, is expected to aid somewhat in stabilizing the market position, although the prospects of a continued oversupply of West Texas and Venezuelan crude are still causing the industry in this section of the country some misgivings.

Diesel Oil

The market has been without change this week. Refiners report a steady demand for deliveries against resting contracts on the part of the large marine consumers, with continued filling-in buying on the part of interests not fully covered on contract.

Sellers are maintaining the market at $2 per barrel, bulk, f.o.b. Bayonne terminal. There has been no change in the situation with respect to domestic demand, trading generally being confined to limited quantities for immediate delivery.

Gas Oil

Business had been holding up well this week, and the same is true of the price basis. Spot 32-36 is unchanged at 5¼ cents a gallon on the part of the leading seller here, but this oil is freely offered in other quarters at 5 cents a gallon. On 28 plus the market is quoted down to 4¾ cents a gallon, although 4⅞ to 5 cents represents the price views of most sellers. Gas companies have been heavy operators during the week, but considerable of this business represents deliveries against term contracts. Weather conditions during the entire week have made for heavy consumption of gas. Local gas companies have made considerable progress this year in putting over the gas furnace idea, and consumption in this direction is becoming an increasingly important factor in the New York market.

Low-grade gas oil is selling well on spot for delivery on furnace oil contracts. There has been a heavy demand for this grade of oil during the week, the spell of exceptionally cold weather having forced a material drain on refiners' furnace oil holdings. This is the "break" which the furnace oil interests have been looking for, mild weather conditions previously during the current winter season having retarded their sales somewhat. Continued activity in the market for the cheaper grades of gas oil is indicated for the next several weeks, and holders in some quarters are showing a tendency to stiffen up somewhat in their price views on this oil.

Export Markets

Continued quiet trading in gasoline is reported in export markets this week. Foreign buyers have not yet come around to the point of accepting the export corporation's domination of the market, and are not yet willing to pay the new price schedule. Several cargo inquiries were in the market this week, but none was reported closed. Operators were inclined to regard these inquiries as "feelers." The current schedule on bulk gasoline prices is as follows:

	Cts. gallon — North Atlantic	Gulf
Navy	9½	8½
60-62 390 endpoint	10¾	9¾
64-66 375 endpoint	11	10
66-68, aviation grade	14	13

There is a fair movement of cased gasoline reported, the market holding steady at 26.40 cents per gallon here.

Export kerosene sales have been rather light during the week on bulk stocks, although a fair movement of the cased product is reported. Cased is quoted here at 17.65 cents a gallon for standard white and 18.90 cents for water white. Quotations on bulk kerosene are; North Atlantic, prime white, 7¾ cents; water white, 8¾ cents; Gulf, prime white, 6¾ cents; water white, 7¾ cents.

Fuel oil at the Gulf has been rather quiet this week, with the market in easy position. Sellers were quoting the mar-

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Practical Suggestions in Refining

By W. T. Ziegenhain

Canadian Gasolines Are More Volatile Than in the U. S.

Gasolines marketed in Canada continue to be more volatile than those marketed in the United States according to a survey made by the Canadian Department of Mines the results of which were just announced in the department's bulletin No. 35. In compiling the data 77 samples were collected from wholesale and retail stations in Halifax, St. John, Quebec, Montreal, Ottawa, Toronto, London, Winnipeg, Regina, Calgary, Edmonton, Vancouver and Victoria, showing the territory covered. Because of the wide distribution the test results may be considered as reflecting the quality of gasoline sold throughout the entire dominion.

These samples were collected during August of last year and may be compared directly with those collected by the United States Bureau of Mines during July as part of the semiannual survey of gasolines sold in this country.

Lower average temperatures throughout Canada over a year's time will naturally account for the more volatile gasolines sold there and it is significant that the individual distillation points for the Canadian gasolines should average considerably below those of the United States gasolines. For instance the average 90 per cent point on the Canadian gasoline is 359 degrees Fahrenheit compared with 380 degrees Fahrenheit for the United States average for July. The average endpoint of the Canadian gasoline is shown as 409 degrees Fahrenheit while the corresponding test on the United States gasoline is 413 degrees Fahrenheit.

For direct comparison the results of the two surveys are shown below, the test results being shown as the average of all samples tested in the respective groups.

Specification—	Canadian Gasoline °F.	U.S. Gasoline °F.
I.P.	107	100
20 per cent	186	190
50 per cent	255	265
90 per cent	359	380
Endpoint	409	413
Recovery	97.3%	...

It is interesting to note the lower average initial on U. S. Motor gasoline sold in the United States but the reverse is true as the higher points are studied.

Compared to the results shown in 1927 there is a rather decided increase in the volatility of the gasoline the latter year. The average for the 90 per cent point was lowered from 366 degrees Fahrenheit in 1927 to 359 in 1928. Similarly the endpoint was lowered 7 degrees to 409 degrees Fahrenheit in 1928 with slightly less differences shown in the average of the distillation points lower in the range.

There was also a lesser difference noted in the quality of the individual gasolines for 1928. The method of comparison was to average the endpoints of the 10 gasolines having the highest endpoints and the 10 having the lowest endpoints and then the difference between these two averages was taken as the index of variation.

On this basis the 1928 survey showed a difference of but 57 degrees compared to 58 degrees the year before and 58 degrees in 1926. Prior to 1926 this difference was much greater and in 1925 went to 92 and then to 101 in 1924. In a measure, this represents a great improvement besides any improvement that has come through the improved quality of the average gasoline.

IMPORTANT CHANGES IN GASOLINE SPECIFICATIONS MAY MATERIALIZE

Will there be a material change in the present U. S. Motor gasoline specifications to satisfy the recent government request for a more volatile gasoline, will a new "premium" grade of motor gasoline specifications be added or will the future discussion regarding these changes become so entangling that in its final settlement the present specifications will remain substantially unchanged? These questions seem less answerable now than when the problem was first presented to the advisory board by Dr. H. C. Dickinson of the Bureau of Standards as the representative of the Federal Specifications Board, two months ago.

In the Government's original request a summer and a winter grade of gasoline was proposed, each of which would be more volatile than that guaranteed by the present specifications. The Government contended it was not sure of getting gasoline as good as the average under the old specifications and that many of the refiners were already supplying these grades of gasoline or better, to their regular trade.

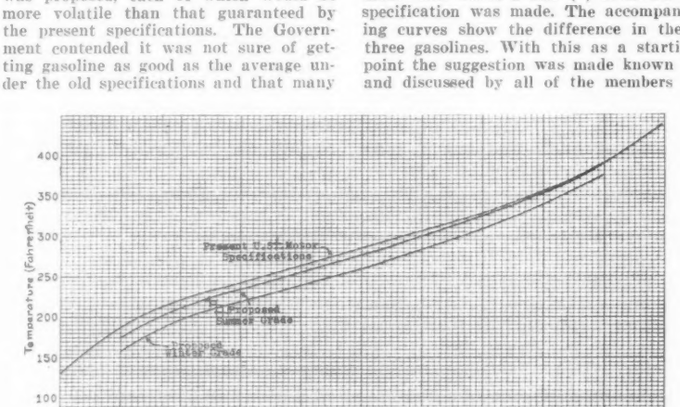
On the other hand, the refiners realized the difference in the cost such a move would bring about and this expense will have to be reflected in the consumers cost. They have naturally raised the question "Are we sure the proposed change will guarantee a better grade of gasoline from the standpoint of performance and will the increased cost be commensurate with the improvement if any?" With this question remaining unanswered the representatives of the committee including the Government and refiners are seeking additional facts on which to base an equitable proposal and at present several additional changes are being considered.

The Government has the privilege of establishing its own specifications, to govern its own purchases but because these specifications are generally followed by the individual states and by the general trade there is a widespread interest aroused. The specifications on each of these originally proposed grades are shown here accompanied with the present U. S. Motor specifications.

	I.P. °F.	10% °F.	20% °F.	50% °F.	90% °F.	E.P. °F.
Prop. summer grade	(*)	176	(*)	275	392	(*)
Prop. winter grade	(*)	158	(*)	257	374	(*)
Present U. S. Motor	131	(*)	221	284	392	437

The above specifications are "maximum" and where a star (*) is shown no specification was made. The accompanying curves show the difference in these three gasolines. With this as a starting point the suggestion was made known to and discussed by all of the members of the advisory board and when representative refinery groups met in Chicago during the American Petroleum Institute there was a wide diversity in the ideas regarding what changes should be made, but the Government's original proposal of a winter and summer grade was met with general objection. The Government, through Doctor Dickinson, insisted it needed a more volatile motor grade of gasoline and made another proposal in which the summer and winter grades were no longer mentioned but chose to establish a set of "premium" grade specifications for the more volatile gasoline and asked that the regular U. S. Motor specifications be changed whereby the I.P. of 131 degrees Fahrenheit would be eliminated, a 10 per cent point of 176 degrees Fahrenheit be established instead, and the present 20 per cent point eliminated. The 50 per cent point was to remain at 284 degrees Fahrenheit and the 90 per cent at 392 degrees Fahrenheit and the endpoint specification eliminated. The new "premium" grade was to have the following specifications:

I.P.	Not specified
10 per cent	122-158 deg. F.
50 per cent	257 deg. F. max.
90 per cent	356 deg. F. max.
E.P.	Not specified



New Grade

This set of specifications called for a much more volatile grade than the regular U. S. Motor and the committee immediately sought a means of preventing its being established as a regular motor grade. It was suggested that a name be adopted for this grade which would be distinctive and that it be termed a naphtha instead of a gasoline. This is obviously contradictory to the general use of the term since the proposed gasoline was to be more volatile than the regular grade but the suggestion was entertained on the grounds that it would thus be less likely to be generally accepted by the trade

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TABLE 1—AVERAGE RESULTS OF MOTOR GASOLINE SURVEYS

Summer

Survey—	Degrees A.P.I.	First drop	Per cent 20	Per cent 50	Per cent 90	End-point	Aver. B.P.	Per cent recover'd
July, 1920	57.4	130	208	208	388	446	277	96.7
July, 1921	57.9	125	202	262	377	433	270	96.7
July, 1922	56.8	121	208	270	375	429	273	96.8
July, 1923	56.9	125	206	269	382	436	273	96.8
July, 1924	56.9	107	200	271	390	431	273	96.0
July, 1925	56.2	108	204	275	387	427	275	96.2
July, 1926	57.2	100	194	266	382	421	287	96.7
July, 1927	57.7	102	193	267	381	417	267	96.4
July, 1928	57.7	100	190	265	380	413	265	96.1
Average	57.2	113	201	268	382	428	271	96.5
Originally proposed	....	...	...	275	392	...	...	....

Winter

Survey—	Degrees A.P.I.	First drop	Per cent 20	Per cent 50	Per cent 90	End-point	Aver. B.P.	Per cent recover'd
January, 1920	57.7	119	200	259	369	427	264	96.6
January, 1921	58.7	113	197	261	377	431	264	95.9
January, 1922	58.4	102	200	267	377	430	268	96.0
January, 1923	58.8	107	201	267	375	427	268	96.0
January, 1924	57.7	96	196	267	383	431	268	96.2
January, 1925	58.2	95	195	266	382	425	267	96.2
January, 1926	57.9	93	189	264	380	423	264	96.3
January, 1927	57.7	92	185	264	383	421	264	96.5
January, 1928	57.9	90	181	261	378	416	260	96.5
Average	58.2	101	194	264	378	426	265	96.2
Originally proposed	....	...	...	257	374	...	...	....

Recent Patents

REMOVE WAX WITH SOLVENTS

1,684,426. Method of Treating Petroleum Products. Everett Raymond Wiles, Barnsdall, Okla. Filed April 24, 1923. Serial No. 634,367. 1 Claim. (Cl. 196—20.)

The method of recovering amorphous paraffin of high melting point from petrolatum, which comprises treating the petrolatum with a mixed solvent consisting of approximately 35 per cent of acetone and 65 per cent of benzol, cooling the solution and separating the paraffin therefrom.

DECREASE DIAMETER OF TUBES

1,685,476. Process for Cracking Oils. Joseph G. Alther, Chicago, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed August 20, 1920. Serial No. 404,745. Renewed June 9, 1928. 5 Claims. (Cl. 196—58.)

2. The process of cracking petroleum oil, comprising passing the oil through a coil of progressively decreasing size disposed within a heating zone wherein the diameter of the coil decreases in accordance with a lowering temperature in the heating zone, in discharging the oil from the smallest portion of the coil into a vapor chamber, in collecting vapors from said chamber and in subjecting said vapors to a condensing action.

INJECT GAS TO INCREASE FLOW

1,685,488. Process and Apparatus for Converting Hydrocarbons. Lyman C. Huff, Chicago, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed February 19, 1923. Serial No. 619,820. 3 Claims. (Cl. 196—62.)

1. The step of heating oil in an oil cracking process, which consists in continuously passing the oil in a restricted stream through an elongated conduit disposed within a furnace, wherein the oil is raised to a cracking temperature, in stepping up the velocity of flow of the oil stream through said conduit, and in assisting in the heating of the oil in the stream by introducing a superheated inert gas into the oil stream in successive sections of said conduit under a pressure in excess of the pressure on the oil stream and at a velocity greater than the velocity of flow of the oil stream.

EASTERN OIL MARKET PRICE TREND LOWER

(Continued from Page 119)

bet at 68 cents a barrel for bunker "C" in cargo lots.

Lub oil sales for shipment abroad have been small this week, with prices easy. The same condition holds true of paraffin wax. Sales of petrolatum for export have slackened off somewhat, but refiners are still holding the market firm and show no inclination to shade prices as a means of stimulating business.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Jan. 26	Jan. 19	Jan. 12
Gasoline	850,000	770,000	570,000
Naphtha	2,629,000	1,547,000	
Kerosene	440,000	1,285,000	272,000
Fuel oil	4,000	25,000	
Lubricating oil	2,985,000	2,645,500	1,246,500
Petr., refined	1,330,000	1,330,000	552,000
	Pounds		
Petrolatum	53,000	.....	42,900
Paraffin wax	1,623,000	3,789,000	663,800
Refined	.....	.....	24,000
Scale	1,444,000	311,000	1,104,500
Lubr. grease	2,629,000	1,003,000	1,361,900

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended January 26 totaled 390,000 bbls., a daily average of 55,714 bbls., compared with 418,000 bbls., a daily average of 59,714 bbls. for the week ended January 26 and a daily average of 54,000 bbls. for the four weeks ended January 26. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	147,000
New York	75,000
Others	168,000
Total	390,000
Daily average	55,714

Distribution of total California oil receipts is as follows:

Gasoline	294,000
Kerosene	96,000

Imports

Imports of crude and refined oils at the principal United States ports for the week ended January 26 totaled 1,963,000 bbls., a daily average of 208,143 bbls., compared with 1,414,000 bbls., a daily average of 202,000 bbls. for the week ended January 19 and a daily average of 264,857 bbls. for the four weeks ended January 26. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	115,000
New York	635,000
Philadelphia	428,000
Others	278,000
Total	1,457,000
Daily average	208,143
At Gulf Coast Ports—	
New Orleans and Baton Rouge	506,000
Daily average	72,286
At all United States ports—	
Total	1,963,000
Daily average	280,429
Daily average 4 weeks ended	264,357

Included in the week's arrivals of crude at New York were the following shipments:

To Pan American Petroleum & Transport Corp.: 68,000 bbls. on the Meline from Aruba; 70,000 bbls. on the S. M. Spalding from Aruba; 50,700 bbls. on the Oscar D. Bennett from Aruba.

To Gulf Refining Co.: 118,500 bbls. on the Gulfbird from Las Piedras; 63,000 bbls. on the British General from Las Piedras; 115,500 bbls. on the Gulfhawk from Las Piedras.

To Asiatic Petroleum Co., 55,000 bbls. on the Miriata from Curacao.

BIG CHICAGO DEMAND FOR FURNACE OILS

(Continued from Page 118)

processed oils are now offered and strongly urged for superior merit.

Tank Wagon Situation

The reduction of 1 cent a gallon in the tank wagon over the territory was expected but what the trade did not anticipate was the reduction of 2 cents in the service station price. The lessened spread makes the new Q.D.A. contracts which are based on the service station prices in one way more desirable as it makes the price at which the dealer who takes more than 6,000 gallons a month 2 cents below the tank wagon instead of 1 cent as before the change in the schedule was made. There is a good deal of quiet talking among the smaller distributors regarding the reduction in the spread but none of them sees anything to be done about it. Some believe that it will really make little difference in the long run. The change favors tank wagon distribution as compared with station deliveries, and the organization that has more of its gallonage through the wagon than through stations is better off. The Standard Oil Co. of Indiana is generally believed to distribute much more through its wagons than through the stations.

The reduction in the tank wagon and station prices was from the normal posted price. The result is that in some places there was no reduction to the public. The distributors are working under various contracts which call for different margins. The straight Q.D.A. agreement allows a margin of 2 to 3 cents according to the quantity sold each month. Many of the Triple A agreements allow a margin of 4 cents and some exceptional contracts may give the owner of the station something over the 4-cent margin. Many dealers contend that the 3-cent margin allowed by the Q.D.A. is not sufficient for them to carry on their business and they are striving for a wider differential. Recently a local organization made some of the garages and station owners an offer of a contract which provided for a margin of 3 cents to be deducted from the invoice at delivery and an additional discount of 1 cent to be paid each month on the quantity bought during the preceding month, this extra discount to be given in return for the service of the distributor in pushing the merchandise of the seller of the gasoline. Some such contracts have been made. These discounts mentioned all apply to the tank wagon deliveries. Distributors who have a siding and can take in tank car deliveries may have contracts based on a guarantee under the tank wagon price of 3½ or in some cases 4 cents delivered. Others may buy in the spot market. Right now those who follow the plan of buying in the spot market have some advantage in the cost of their gasoline.

The importance to the distributor of the sale of a well known brand of high grade lubricating oils has been recently shown here by the action of some distributors with desirable station outlets who have refused to enter into what seemed really liberal agreements with large refiners because the latter insisted on the dealer becoming their exclusive agent and doing away with his selling of some of the widely advertised brands of motor oils and greases. The dealers express themselves that while the oils to be supplied by the refiner who offered them the agreement might be equal in quality to those he was now selling, his customers did not know this and he was certain to lose some good and profitable customers if he made the change.

IMPORTANT CHANGES IN GASOLINE SPECIFICATIONS

(Continued from Page 120)

Finally the name U. S. High Volatility or H.V. gasoline was accepted.

There continues to be objections to these changes and many who were favorable now feel the best solution is to discourage any change. On February 5 the advisory committee was to meet in Washington to further consider their final recommendation to the federal board, but this meeting has been postponed. In the meantime refiners are securing additional data to present to show how the various changes will effect yields and increase the cost to the consumer.

A loss in the yields of gasoline direct from crude, should the original summer and winter specifications have been adopted has been estimated between 2 to 4 per cent. The yields from pressure stills would be lowered as much as 6 per cent based on the raw oil charged. This latter fact is due to being able to crowd a substantial quantity of the heavier ends of the gasoline into the last half of the gasoline cut. This loss in yield represents a strong argument in favor of leaving the present U. S. Motor specifications essentially unchanged but a stronger argument seems to be in the fact that the average gasoline sold in the United States during the winter over the last 10 years would not have met the newly proposed specifications. The acceptance of these proposed specifications for general use might be interpreted as meaning that the gasoline of the past has not been satisfactory. For reference the results of the gasoline surveys made by the United States Bureau of Mines each six months covering the last 10 years is shown in the accompanying table and the comparison stated above may be made directly. This summary was contained in the bureau's report No. 288 under date of August, 1928.

In explanation, the Federal Specifications Board is composed of representatives from different governmental departments who directly or indirectly pass upon the purchases of oil for government use. This board retains an advisory body composed of outside members representing the refining industry and marketing associations interested in the manufacture and sale of the products not only for government purchase but for the industry as a whole. Thus there is a bond established between the specifications as demanded by the Government and the general public and the committee fully realizes its position in this respect and therefore is influenced in its recommendations to the Federal Specifications Board.

CLASSIFIED WANTS

(Continued from Page 117)

OIL INDUSTRY PRINTING

CONSUMERS LEDGERS
We are prepared to furnish from stock standard forms of gas meter Consumers Ledgers. Sample forms and quotations on request. First-class material and workmanship.
DERRICK PUBLISHING CO.
Oil City, Pa.

NEW FORM Mid-Continent Royalty Owners Association crude form, No. 1.
MINERAL DEED—Sample gratis.
OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township books, well records, etc. Request on your letter head gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

INCORPORATIONS

DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

THE LUGAR CORPORATION
Financial and Industrial Engineers
Audits—Appraisals—Reorganizations
Mergers
527 Fifth Avenue
New York City.

MANUFACTURING MACHINISTS

MACHINE WORK—CASTINGS
Machined to your drawings. Gears, Machinery designed and built.
Modern Facilities—Prompt Service.
Reasonable prices. Send for our booklet.
GENERAL ENGINEERING AND MFG. CO., ST. LOUIS, Mo.

PATENT ATTORNEYS

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Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER & ALLWINE
240 Ouray Bldg., Washington, D. C.

GEOLOGISTS

OIL LOCATED before drilling. Geophysical method. Magvibrometer Instrument; take pay in oil. No oil, no pay. Except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Texas.

LOCATING AND DEFINING OIL AND GAS structure which will produce. WANTED, capital interested in wildcat territory. Will lease and locate. D. H. Reavis, Columbia, Tenn.

GEOPHYSICAL SURVEYS made with Vertical Intensity Magnetometer. Also combined geological and geophysical reports, if desired. MID-CONTINENT EXPLORATION COMPANY, INC., 727 Giddens-Lane Bldg., Shreveport, La.

INTERPRETATION of Magnetometer results, detailed structure maps made from vertical magnetometer data. Field parties organized and supervised.
M. KEISER E. E. MAIEE
Consulting Geophysicists
Box 171, Ponca City, Okla.

WANTED

WANTED—Oil operator to develop proven field on shares. Dome formation, oil shallow, near railroad, Alberta, Canada. Box C-762, The Oil and Gas Journal, Tulsa, Okla.

RESPONSIBLE DRILLING CONTRACTOR wishes straight contracts in Michigan Field. Am completely equipped with the best of tools and will make an interesting price to reliable companies. Have the experience, ability and finances to complete your wells in record time. Address Box C-772, The Oil and Gas Journal, Tulsa, Okla.

WANTED MANUFACTURERS interested in patented devices which enables deep wells to pump without rod and tubing. Charles Starysky, Route No. 3, Saint Jo, Texas.

FOR RENT

FOR RENT—Office room, Stenographic services furnished. Call 3-3191. 607-08 Mayo Bldg., Tulsa, Okla.

REAL ESTATE

FOR SALE—Good ten-room residence in Charlottesville, $16,500.00 and 1,500 acres of grazing land in valley of Virginia $50.00 per acre. Trade for western lands. Spears Havely, 503 N. 10th St., Richmond, Va.

A SPLENDID corner property, brick apartment house, two stores, business district, income $510 per month, price $30,000; $7,500 Cash, balance easy terms. Bargains. Correspondence solicited. MacDonald, 211½ South Boston, Tulsa, Okla.

ADDRESSES WANTED

Will D. A. KNIGHT formerly of Denver Mfg. Concern or past business associates, please communicate with C. W. Hogan; important news. Sasakwa, Okla.

Anyone knowing present address of W. E. CLARK formerly of Dallas, San Antonio and Beeville, Texas, please communicate with R. S. Bond, P. O. Box 1595, Dallas, Texas. Have important news for W. E. CLARK.

RANCHES AND FARM LANDS

RANCH FOR SALE
One of the best located ranches in Eastern New Mexico, consisting of 103,000 acres. This ranch is fenced and cross-fenced and has ordinary ranch improvements. Price, if sold at once, $3 per acre. This is one of the best investments to be found anywhere in the West as this property is sure to double in value within the next few years. M. A. Crum, Friona, Texas.

MONEY RAISING

CAPITAL SEEKERS
Will endeavor placing proposition of merit on underwriting basis. Box 44, Room 407, 26 Court Street, Brooklyn, N. Y.

COMPANIES organized and financed. Address full details to, Box C-697, The Oil and Gas Journal, Tulsa, Okla.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 136 E. 13th, Oklahoma City, Okla.

Brief Items for Petroleum Refiners

Central Texas Buys Properties of Kent-Middleton Company

The Central Texas Refining Co. has taken over all the properties of the Kent-Middleton Refining Co. of Corsicana, Tex. The capital stock of the Central Texas company has been increased to $1,250,000 to take care of the new properties.

The absorption of the Kent-Middleton properties follows the purchase of the Kent interests in the Kent-Middleton Refining Co. by C. A. Middleton and associates. Mr. Middleton had been general manager of the company for several years. In the new ownership Mr. Middleton will be president and general manager of the Central Texas Refining Co. The company acquires two refineries in the Kent-Middleton purchase and will continue to operate its refinery at Brownwood, Tex. The three refineries have a

(Continued on Page 135)

C. A. Middleton

MEXICAN OIL CURTAILED BY WEST TEXAS CRUDE

NEW YORK, Feb. 2.—The Pan American Petroleum & Transport Co. has cut its withdrawals of crude from Mexican producing properties from 41,000 to 29,000 bbls. daily. The curtailment, it is stated, is due to the desire of the company to conserve this oil during a period where it cannot successfully compete with low grade crudes produced in West Texas and Venezuela. At present the company is shipping from Mexico 15,000 bbls. of light oil and 14,000 bbls. of heavy oil daily.

Production costs in Mexico are currently reported at approximately 35 cents a barrel. Moving this oil by pipe line to coast terminals adds an average of 15 cents a barrel, with the tax figuring out 20 cents, a total of 70 cents a barrel.

Topping this crude yields approximately 8 per cent gasoline, but the remaining fuel oil cannot be sold at a price sufficient to pay transportation charges to Gulf or Atlantic Coast ports in the United States and still sell in competition with bunker "C" oil at these markets.

According to reports current in some oil circles here, the Mexican government is considering a reduction in oil taxes, to enable Mexican crude to compete with West Texas and Venezuelan oils.

THE TEXAS COMPANY HAS TWENTY PLANTS OPERATING OR BUILDING

The Texas Company during the past year has had under way one of the largest refinery expansion programs of any company in United States. This has been accomplished through the purchase of refineries, the construction of new plants and the enlargement of refineries already operating. With 17 refineries operating and three under construction the company easily leads all other companies in the number of plants. Located in 12 states these refineries cover a greater area than do the plants of any other company.

The construction of refineries at San Antonio and El Paso, Tex., announced the latter part of last year is now under way. The San Antonio plant will have a crude oil capacity of 3,000 bbls. and a cracking capacity of 3,300 bbls. The El Paso refinery will have a crude oil capacity of 1,500 bbls. and a cracking capacity of 1,650 bbls. At Cody, Wyo., the company has had a third plant under construction for several months. This plant will have a crude oil capacity of 3,000 bbls. daily and a cracking capacity of 1,600 bbls. daily.

Through purchase The Texas Company last year acquired the California Petroleum Corp. with three refineries in California and one in Montana operated under the name of the International Refining Co. The company also acquired the refinery of the Galena-Signal Oil Co. located near Houston. This refinery which has been shut down for some time previous to the purchase, has been added to the long list of Texas plants.

Crude Oil Capacity

The 20 refineries in United States have a daily crude oil capacity of 208,950 bbls. daily. All of the plants are now operating or under construction with the exception of the small Coalinga plant in California which is shut down. This plant has a capacity of 1,000 bbls. daily. The company also has a 10,000-bbl. plant at Tampico, Mexico, which is shut down temporarily.

Eleven of the refineries have cracking equipment with a total capacity of 124,950 bbls. daily. These cracking units are all of the Holmes-Manley type which was perfected by The Texas Company. The process bears the names of R. C. Holmes, president of the company and F. T. Manley, vice president both of whom are refinery operators of many years experience. Mr. Manley is now in general charge of refinery operations. Many of the refineries are complete in their operations. The only topping plant is located at Shreveport, La.

The following table gives a complete list of the refineries including their daily crude oil capacity and their daily cracking capacity:

THE TEXAS COMPANY (DELAWARE)
Operating Refineries

Plant location—	Crude capacity	Cracking capacity
Port Arthur, Tex.	60,000	79,200
Port Neches, Tex.	20,000	.....
Houston, Tex.	20,000	.....
West Dallas, Tex.	16,000	3,000
Amarillo, Tex.	3,000	.....
West Tulsa, Okla.	14,000	16,800
Lockport, Ill.	6,000	5,500
Shreveport, La.	6,500	.....
Pryse, Ky.	2,000	2,000
Casper, Wyo.	7,000	9,400
Craig, Colo.	750	500
Sunburst, Mont.*	6,000	.....
Norfolk, Va.	1,500	.....
Marcus Hook, Pa.	1,500	.....
Providence, R. I.	1,200	.....

*Owned by International Refining Co. Operated by The Texas Company.

Refineries Under Construction

San Antonio, Tex.	3,000	3,300
El Paso, Tex.	1,500	1,650
Cody, Wyo.	3,000	1,600

THE TEXAS COMPANY (CALIFORNIA)
Operating Refineries

Watson, Calif.	30,000	2,000
Fillmore, Calif.	5,000	.....
Coalinga, Calif.*	1,000	.....

*Shut down.

JAPAN GASOLINE CO. BUILDS CRACKING PLANT

The Nihon Kihatsuyu Kabushiki Kaisha of Japan (the Japan Gasoline Co.) has closed contracts for the construction of a complete cracking plant to be built on the deep water near Tokyo, Japan.

The refinery will consist of two 1,500-bbl. Dubbs cracking units with a 2,500-bbl. rerun still to handle the pressure distillate. It is expected that the plant will operate on topped California crude oil secured from California by tankers.

In addition to the cracking units other refinery equipment will be installed, including towers, tanks, treating plant, boiler plant, machine shop and gas absorption plant. Arthur G. McKee & Co. of Cleveland, Ohio, are in charge of plant design and construction.

FANTOZZI PROMOTED

CHICAGO, Feb. 2.—At the directors meeting of the Shaffer Oil & Refining Co., held last week C. T. Fantozzi was made manager of distribution sales. Mr. Fantozzi has been in charge of the advertising of the company.

VISIT HOUSTON REFINERY

HOUSTON, Tex., Feb. 2.—A party of officials of the Shell Petroleum Corp. visited Deer Park on the Houston Ship Channel where the corporation has a 20,000 to 25,000-bbl. refinery under construction. The party included U. deB Daily, president; Dr. W. Van Holst Pellekaan, vice president, and G. S. Rollin, vice president. The party came to Houston from the St. Louis headquarters in one of the corporation's airplanes.

Approximately 2,500 men are at work on the construction of the refinery. Officials stated that products from the refinery would serve both the export and domestic trade.

CLINE HEADS SALES FOR TIDE WATER IN CHICAGO

R. N. Cline, for the past three years sales manager of the Tidal Refining Co. Tulsa, has been appointed manager of sales for the central division of the Tide Water Oil Sales Corp., the sales organization of the Tide Water Oil Co. Mr. Cline leaves this week for Chicago where the headquarters for the central division are located. The Tide Water organization specializes in the sale of lubricating oils and branded gasolines.

Mr. Cline has been connected with the Tidal sales department for several years and is widely known in trade circles of the Mid-Continent and Middle West.

BIDS FOR ROYALTY OIL

Sealed bids will be received at the office of the Secretary of the Interior, Washington, for the government's royalty oil in the Kettleman Hills oil field, California, held by the Milham Exploration Co. According to the government, this crude oil amounting to 200 bbls. daily has a gravity of 59 degrees A.P.I. from which 89 per cent gasoline of 437 endpoint is obtainable. Eight per cent kerosene and fuel oil is obtained. The contract is for one year, starting April 1. Bids must be submitted by March 1.

STANDARD OF INDIANA WINS RED HAT CASE

WASHINGTON, D. C., Feb. 5.—The Court of Appeals has rendered a decision in favor of the Standard Oil Co. of Indiana upholding the Standard's contention that the Red Hat trade-mark for gasoline used by the Independent Oil Men of America is an infringement on its Red Crown gasoline trade-mark. In this case the examiner had decided in favor of the Indiana company but was reversed by the commissioner and now the Court of Appeals sustains the opinion of the examiner.

In his opinion Justice Van Orsdel states that the trade-marks are deceptively similar. "This is another example," said Judge Van Orsdel, "of the many cases we have before us where the likelihood of confusion could have been readily avoided had applicants selected a mark not closely similar to its competitor." He quotes a previous opinion of the court in another case as applicable to the Red Hat trade-mark in these words: "The opportunity for selection being as limitless as the human imagination we have reason to question the motive prompting the adoption by one dealer of a mark previously applied by another dealer to like goods."

"Where one is attempting to imitate the mark of another," said Judge Van Ordsel, "he would not commit the blunder of absolutely copying the mark. While red is the predominating color in connection with these marks," he said, "its use tends strongly to induce confusion."

The marks, he said, consist of features which, taken together, force the conclusion that they are deceptively similar and the decision of the commissioner is reversed.

EQUIPMENT AT BORGER GOING TO DEL RIO

The Amarillo Producers & Refiners Corp. of Amarillo, Tex., has closed down its refinery at Borger, Tex., and will remove the equipment to Del Rio, Tex., where the company has a plant under construction. The Borger plant was built during the early development in the Panhandle area and started operating in October, 1926.

Last year the company built a second plant at Pyote, Tex., which has been operating for several months. This plant has a capacity of 3,000 bbls. daily and is now refining about 2,000 bbls. daily. The crude runs to stills will be increased in the spring. Practically all of the gasoline output is being shipped to points north and as far east as Ohio.

The Del Rio plant will have a capacity of 2,500 bbls. daily and will start operating about April 1. The plant will operate with West Texas crude oil obtained from the main trunk line of the Mid-Kansas Oil & Gas Co. The Southern Pacific Railroad has contracted with the company for a large quantity of fuel oil.

John Wrather, who is the son of J. D. Wrather, president and general manager of the company, has charge of refinery construction and operation. P. H. Hertzog, assistant to the president, is in general charge of the sales and traffic departments.

CHANGE REFINERY NAME

The Reliance Refining Co., which owns a small skimming plant at Kalispell, Mont., has been reorganized and the name changed to the Kalispell Refining Co. Some changes will be made at the plant so that it will have a skimming capacity of 400 bbls. daily. The company distributes the products locally. B. R. McAllester and R. W. Lind have been placed in charge of operations.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GUM IN GASOLINE

Can you give me any references which cover the determination of gum in gasoline, other than the government test, and what are the proper limits to the amount which a good gasoline may contain? Is there any method for determining gum which is more reliable than the copper dish test?—C. L. K.

This subject has been discussed numerous times on this page. A recent paper which covers the subject in considerable detail was presented before the December 3-6, 1928, meeting of the American Petroleum Institute at Chicago, and was printed in The Oil and Gas Journal, December 20, 1928, page 152. This paper was by Voorhees and Eisinger, under the original title, The Importance and Significance of Gum in Gasoline.

A method was proposed, known as the oxygen gum test, for the purpose of routine determination of gum stability. It consists in heating a sample of gasoline with oxygen at 210 degrees Fahrenheit. Instead of measuring the quantity of oxygen absorbed, the quantity of gum produced after heating for a given period is determined.

The literature contains only scanty reference to the quantity of gum which can be tolerated in a motor fuel. The Bureau of Mines in Technical Paper 214, describing the copper dish test, states that the fuel should not give more than .03 per cent gum by this test. This amounts to 22 mg. per 100 cc. It is also stated that aviation fuel should leave no "weighable residue." In these specifications it should be pointed out that no distinction has been made between gum already contained in the fuel and gum which may form on storage. Obviously, a specification covering the gumming characteristics of gasoline should state the permissible gum content of the gasoline at the time of use as an indication of its suitability for engine fuel, and it should also specify gum stability as an indication of the length of time it will remain free of gum in storage. For these purposes it is apparent that no single test will suffice. We believe this paper describes satisfactory and reproducible tests for both gum content and gum stability in the steam oven test and the oxygen gum test, respectively.

In this work, an effort has been made to determine the maximum quantity of preformed gum which can be permitted in a fuel without seriously affecting engine operation. The results are admittedly incomplete, but they seem to indicate that under most conditions, more than 10 mg. of actual gum per 100 cc. at the time of use may produce a noticeable deposit in the inlet passage and on the valves. In as much as the tests were made on air-cooled engine in which the intake manifold and valve temperatures are high, and in which gum deposition would be expected to be most serious, we believe that this limit for actual gum content is quite conservative. The work on the Delco engine has been more or less substantiated by actual car tests on the road. A new four-cylinder passenger car was operated for 1,068 miles, using 78 gallons of a gasoline which had shown a copper dish test of 351 mg. of gum per 100 cc. and a steam oven test of only 6 mg. per 100 cc. It gave good performance and showed no signs of deposits on the inlet valves. Another similar test on the same fuel in a six-cylinder car showed the same results.

It is not so easy to fix the limit for potential gum or gum stability, involving as it does the time of storage at the refinery, the bulk station and in the distributor's and the consumer's tanks. Because of the great variation in the time of storage it is obvious that a satisfactory stability test must be rigid enough to ensure that excessive quantities of gum will not be formed in any reasonable period of storage. The oxygen-gum test has been developed for this purpose, although data giving direct comparisons between the predictions by this test and actual gum formation after storage are rather meager. Some of the results which have been obtained are given in the table. They seem to indicate that a gasoline which forms less than 10 mg. of gum in the oxygen test (25 cc.) will not form enough gum on storage for at least a year, to impair its value.

Ability of the Oxygen Gum Test to Predict Gum Stability

Sample	Oxygen gum test mg. per 25 cc.	Time of storage	Actual gum formed mg. per 100 cc.
26	410	21 mos.	168 (gum separated)
23	465	21 mos.	612
22	4 6	21 mos.	6
24	0	21 mos.	1 4
27	252,246	8 mos.	48, 36
28	3,4	8 mos.	8, 10
29	2,2	8 mos.	2, 2

COMPOSITION OF ALUMINUM SILICON ALLOYS

What is the composition of the hard alloys of aluminum which contain a large percentage of silicon? Do these stand up well against petroleum corrosion?—T. B. P.

A leading company which prepares the numerous aluminum alloys furnishes the information given below.

While the properties of aluminum silicon alloys have been studied for some years their commercial application is a comparatively recent development. Their present extensive use is due largely to their excellent casting properties. When using ordinary foundry practice the maximum silicon content which can be used successfully in sand castings is about 11 per cent, a value very close to the normal eutectic composition. An alloy of this composition may contain the following:

	Per Cent
Silicon	9 to 11
Iron (maximum)	0.6
Manganese (maximum)	0.5
Copper (maximum)	0.6
Aluminum	Remainder

By the use of special foundry methods it is possible to use a silicon content around 13 per cent and obtain an extremely fine grained structure which possesses both high strength and elongation.

The alloys high in silicon have a fairly coarse crystalline fracture which is more pronounced the higher the silicon content. The presence of excessive quantities of iron is evidenced by an excessively coarse crystalline fracture. These alloys when liquid have a greater tendency to absorb iron than do the aluminum copper alloys. Because of the harmful effect of the iron on the physical properties of the cast alloy, it is necessary to use care in the melting operation to keep contamination at a minimum. The molten alloys are quite fluid at temperatures down almost to their solidification temperature, and their solidification shrinkage is low. It is somewhat easier to make castings free from leaks in silicon alloys than in most other aluminum alloys; consequently they are used for parts which must be leak-proof under either vacuum or pressure.

These alloys are among the most resistant to corrosion of all aluminum casting alloys and are well suited for many conditions in the handling of hydrocarbon gases, vapors and liquids. Because of this property they have given excellent service in marine work, except where they are in contact with concentrated brine.

PRESSURE PEAK DUE TO DETONATION

On page 15 of Gasoline and Other Motor Fuels, by Ellis and Meigs, is shown a series of graphs depicting the time pressure relations occurring in an engine cylinder under conditions of detonation. As pictured, the pressure peak due to detonation is shown invariably as happening prior to top dead center. Is this universally true, i.e., does detonation always happen before top dead center, or may it occur later in the cycle?—L. F. H.

It has been pretty definitely established that detonation is a disturbance that occurs about the time flame reaches the point in the combustion chamber farthest removed from the spark plug, and with the spark advances at which engines are normally operated, this happens before or very close to top dead center. But, although the above statement about the point in the cycle at which detonation occurs is true in a general way, there is no reason why detonation should not occur after top dead center if the spark were set late enough for the flame to reach the end of the combustion space after top dead center, and if at the same time compression ratio of the engine were high enough to permit knocking under those conditions.

Detonation is a function of the combustion period and not altogether of the point in the cycle at which combustion occurs.

PROPERTIES OF BABBITT METAL

Can you furnish a list of the metals that are used in making babbitt together with the melting point? What is the standard for Brinell hardness—G. N. G.

There are several grades of babbitt metal and these differ in properties according to the percentages of antimony, copper, tin, and traces of lead. The quantity of antimony is usually between 8 to 12 per cent, copper 3 to 10 per cent, tin 80 to 90 per cent. It is important that the quantity of antimony should always exceed that of copper, because antimony has an important influence on the brittleness.

The melting points of several alloys of this class, made by a leading company, range from approximately 360 degrees Fahrenheit to 480 degrees Fahrenheit. Attention should be called to the difference between melting point and the proper pouring temperature. Babbitt metal should be melted quickly and brought to the pouring temperature without delay, because the character of the alloy is changed when heating is continued. The babbitt metals containing the larger percentages of copper require the higher pouring temperatures and should be kept well stirred to prevent the separation of the copper. The pouring temperatures of the same alloys mentioned in the above range of melting points vary from 625 degrees Fahrenheit to 920 degrees Fahrenheit.

Hardness of metals may be measured by what is known as the Brinell ball test, in which a hardened steel ball one centimeter in diameter is pressed into the surface of the metal. It is stated in the form of a number which represents the quotient of the pressure and the area of surface of indentation. Babbitt metals have about half the hardness at 212 degrees Fahrenheit that they have at the ordinary room temperature of 70 degrees Fahrenheit. The Brinell hardness at 70 degrees Fahrenheit varies between 14 and 35, and at 212 degrees Fahrenheit, between 6.5 and 15.8.

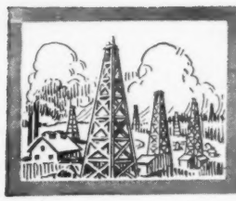
CHROMIUM PLATING REDUCES CORROSION LOSS

Have you any information covering the value of chromium plating as a protective agent against corrosion for refinery equipment?—D. J. F.

It has been proved that one of the most useful means for reducing corrosion is the employment of chromium as a resistant material, both in the form of rustless iron or steel, and as a surface plating on other metals. The particular properties which is possessed by a chromium surface includes great hardness, making it resistant to abrasive action, and its high resistance to attack by almost every corrosive agent. Hence the comparatively frail protection offered by a thin plating is far more effective than with other metals usually employed as a protective plating.

It has been suggested the inner surface of cracking stills and tubes be protected by chromium plating, as otherwise the steel of the stills rapidly take up sulphur from the oil. Mr. Humphreys in Automotive Industries, April 30, 1927, cited a case in which the walls of a cracking cylinder made of seven-eighths-inch boiler plate became reduced to an effective thickness of three-eighths inch inside of a year. The cylinder cost $25,000, and was part of a unit which cost $110,000. In such a case, chromium plating promises to effect a great saving. A further advantage of the use of chromium plating in cracking units is that carbon will not adhere to chromium, but the deposit will remain on it quite loosely, and can be blown away from the surface. The pistons of pumps used for handling hot oil in cracking processes give much trouble through corrosion. This trouble can be avoided by protecting the surface with chromium.

In nickel plating, the cost of the material used is less than 10 per cent of the total costs. With a thickness of coating of 0.0002 inch, a pound of nickel, costing, say, 50 cents, will suffice to cover 110 square feet or about the half of 1 cent per square foot. A pound of chromium, by reason of its smaller specific gravity and the thinner coating possible, will cover about 266 square feet. The cost of the chromium, therefore, is not the main factor in the total cost of chromium plating. Against its several advantages over the usual plating metals, a positive contact in plating is absolutely necessary, and this adds to the cost of the plating operation, because more labor is required.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Feb. 5		Jan. 29		Jan. 22	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06½	.06¾	.06¾		.07¼	.07½
56-58 450 endpoint	.06½	.06¾	.06¾		.07½	
58-60 450 endpoint	.06½	.06¾	.06¾		.07½	
*56-60 437 endpoint (U. S. Motor)	.0702		.0775		.0796	
*60-62 437 endpoint	.0726		.0773		.0847	
*60-62 400 endpoint	.075		.0825		.0843	
*64-66 375 endpoint	†.08		.0850		.0937	
68-70 360 endpoint	.08½		.08½		.09	.09¼
64-66 437 endpoint (blend)	.06¾		.07	.07¼	.07½	.07¾

*Weighted average prices February 4, January 28 and 21, as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices given are general market.

NORTH TEXAS—						
56-58 450 endpoint	.06½	.06¾	.06¾		.07	.07¼
58-60 450 endpoint	.06½	.06¾	.06¾		.07¼	
58-60 437 endpoint (U. S. Motor)	.06¾	.07	.07¼	.07½	.07⅝	.07½
60-62 400 endpoint	.07½		.07½	.07¾	.07¾	.08
64-66 390 endpoint	.07⅝	.07¾	.07⅝		.08	
64-66 375 endpoint	.07¾	.08	.07¾	.08	.08¼	.08½
68-70 360 endpoint	.08½	.08¾	.08½	.08¾	.08¾	.09
64-66 437 endpoint (blend)	.06¾	.07	.07	.07¼	.07¼	.07½
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.07¼	.07½	.07½	.07¾	.07¾	.08
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.07¼		.07½		.08	
PENNSYLVANIA—						
52-54 Naphtha	.08½	.08¾	.08½	.08¾	.09	.09¼
54-56 Naphtha	.09½	.09¾	.09½	.09¾	.09¾	.10
58-60 Gasoline	.09½	.09¾	.09¾	.10	.10	.10¼
60 Gasoline	.10¼	.10½	.10¼	.10½	.10½	.10½
62 Gasoline	.10½	.10¾	.10½	.10¾	.10¾	.11
64 Gasoline	.10¾	.11	.10¾	.11	.11	.11¼
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09½	.10	.09½	.10	.10	.11
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06½	.06¾	.06⅞		.07¼	.07½
56-58 450 er lpoint	.06⅝	.06¾	.06⅞		.07¾	.07⅝
58-60 437 endpoint (U. S. Motor)	.06¾	.07	.06⅞	.07	.07½	.08
60-62 400 endpoint	.07¼	.07½	.07½		.08⅛	.08¾
64-66 375 endpoint	.07⅞	.08	.08		.08⅜	.09
68-70 360 endpoint	.08¼	.08½	.08¼	.08½	.09¼	.09½
64-66 437 endpoint (blend)	.07	.07⅝	.07¼	.07½	.07½	.08
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

NATURAL GASOLINE

	Feb. 5		Jan. 29		Jan. 22	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼		.07¾		.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½		.06¾	.07	.06¼	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½		.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05	.05⅛	.05½		.05½	
Grade C, 80-90, 375 e.p., rec. 78%	.04¾	.05	.05¼	.05½	.05½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼		.07½	.07¾	.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½		.06¾	.07	.06¼	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½	.05¾	.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05	.05⅛	.05½		.05½	.05¾
Grade C, 80-90, 375 e.p., rec. 78%	.04¾	.05	.05¼	.05½	.05½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07		.07		.06¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾	.06	.05¾	.06	.05¾	.06
Grade C, 80-92, 375 e.p., rec. 78%	.05¼	.05½	.05½	.05¾	.05½	
CALIFORNIA—						
75-78, 375-390 endpoint	.08	.08½	.08	.08½	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼	.07½	.07¼	.07½	.07	.07¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¼	.06½	.06½	.06⅝	.06¼	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½	.05¾	.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05	.05⅛	.05½		.05½	.05¾
Grade C, 80-90, 375 e.p., rec. 78%	.05		.05¼		.05½	

BURNING OIL

	Feb. 5		Jan. 29		Jan. 22	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05	.05¼	.05	.05¼	.05¼	.05½
42-44 water white Kerosene	.05⅞	.06	.05⅞	.06	.06	
NORTH LOUISIANA—						
41-43 water white Kerosene	.06		.05¾	.06	.06	.06¼
NORTH TEXAS—						
41-43 water white Kerosene	.05¼	.05½	.05¼	.05½	.05¾	.05¼
40-42 water white Kerosene	.05¼		.05¼		.05¼	.05⅜
ARKANSAS—						
41-43 water white Kerosene	.05¾	.06	.05¾	.06	.06	
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.06¾	.07	.07	.07⅛
45 Kerosene water white	.07	.07¼	.07	.07⅛	.07⅛	.07¼
46 Kerosene water white	.07¼	.07¾	.07½	.07¾	.07½	.07¾
47 Kerosene water white	.07¾	.08	.07½	.07¾	.07½	.07¾
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06	.06½	.06	.06½	.06½	.07
Engine distillate, 43-44, 445 endpoint	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 42-44, 480 endpoint	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05⅛	.05¼	.05	.05¼	.05¼	.05½
42-44 water white Kerosene	.05½	.05¾	.05¾	.06	.05¾	.06

FUEL OILS

	Feb. 5		Jan. 29		Jan. 22	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
18-22 Fuel Oil, per bbl.	.55	.57½	.55	.57½	.55	.57½
22-26 Fuel Oil, per bbl.	.62½	.65	.60	.62½	.60	.62½
24-26 Fuel Oil, per bbl.	.65	.67½	.65	.67½	.62½	.65
26-30 Fuel Oil, per bbl.	.75	.80	.67½	.70	.65	.70
28-30 Fuel Oil, per bbl. (industrial)	.85	.87½	.82½	.85	.80	.82½
28-30 Fuel Oil, per bbl. (zero cold test)	1.00	1.05	.95	1.00	.92½	.95
32-36 Gas Oil (industrial)	.02¾	.03	.02⅝	.02¾	.02⅝	.02¾
32-36 Gas Oil (straw color)	.02⅞	.03⅛	.02¾	.03¼	.02¾	.03⅛
36-38 Distillate	.03⅝	.03¾	.03¼	.03½	.03⅛	.03⅜
38-40 Straw Distillate	.03¾	.04⅛	.03¾	.03⅞	.03½	.03¾
NORTH TEXAS—						
Below 20 Fuel Oil	.60	.62½	.57½	.60	.55	.57½
24-26 Fuel Oil, per bbl.	.62½	.67½	.60	.65	.55	.60
32-36 Gas Oil (straw)	.02¾	.03	.02⅝	.02⅞	.02⅝	.02⅞
38-40 Straw Distillate	.03¾	.04	.03⅝	.03¾	.03½	.03⅝
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.75	.80	.75		.75	
32-36 Gas Oil	.03¼		.03		.03	
ARKANSAS—						
33-36 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03⅜
32-36 Gas Oil (straw)	.03¼		.03		.03	
16-22 Refinery Fuel Oil, per bbl.	.70	.75	.65	.70	.75	
GULF COAST (South Texas)—						
Gas Oil	.04¼	.04½	.04¼	.04½	.04¼	.04⅜
Bunker C Fuel, per bbl.	.80	.90	.80	.90	.80	.90
PENNSYLVANIA—						
30-34 Fuel Oil	.04½	.04⅝	.04½	.04⅝	.04⅜	.04⅝
36-40 Fuel Oil	.04⅝	.04¾	.04⅝	.04¾	.04¾	.04⅞
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03	.03½	.03	.03½	.03	.03⅛
*15-20 Fuel Oil, Bunker (at tide water)	.75	.85	.75	.85	.75	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.95	1.05	.95	1.05	.95	1.10
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, Group 3, bbl.	.62½	.67½	.60	.65	.60	.65
18-22 (Group 3), per bbl.	.55	.57½	.55	.60	.55	.60
16-20 Smackover, per bbl.	.87½	.90	.85	.90	.85	.90
28-30 Fuel Oil (zero)	1.00	1.10	.95	1.00	.95	1.00
32-36 Gas Oil, zero	.03⅛	.03⅜	.03	.03¼	.03	.03⅛
32-36 Gas Oil (industrial)	.02⅝		.02¾	.02⅞	.02¾	.02⅞
36-38 Distillate	.03¾	.03⅞	.03⅝	.03¾	.03¼	.03⅜
38-40 Straw Distillate	.03⅞	.04	.03¾	.03⅞	.03½	.03¾

*Bunker.

LUBRICATING OIL AND WAX

	Feb. 5		Jan. 29		Jan. 22	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06¾
100 vis., 3 color, 20-25 cold test	.05¼	.05½	.05¼	.05½	.05¼	.05½
150 vis., 3 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
150 vis., 4 color, 20-25 cold test	.07	.07¼	.07	.07¼	.07	.07½
180 vis., 3 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08½	.08¾
180 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
200 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 4 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09½
200 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
240 vis., 3 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 4 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
240 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¾	.11
280 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
280 vis., 4 color, 25-30 cold test	.12¾	.13	.12¾	.13	.12¾	.13
280 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
Cylinder Stocks:						
600, steam refined, light green	.09	.12	.09	.12	.09	.12
600, steam refined, dark green	.08	.10	.08	.10	.08	.10
190-200 vis. @ 210 Bright Stock	.31	.35	.31	.35	.31	.35
150-160 vis. @ 210 Bright Stock	.29	.32	.28	.31	.28	.31
Waxes:						
124-126 White Crude Scale Wax	.04½	.04¾	.04¾		.04¾	
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.25½	.26	.25½	.26	.25½	.26
200, 3 color	.28	.28½	.28	.28½	.28	.28½
220, 3 color	.30	.30½	.30	.30½	.30	.30½
600, steam refined	.22½	.23	.22½	.23	.22½	.23
635, steam refined	.27½	.28	.27½	.28	.27½	.28
650, steam refined	.29½	.30	.29½	.30	.29½	.30
600, Pennsylvania flash	.31½	.32	.31½	.32	.31½	.32
630, Pennsylvania flash	.36½	.37	.36½	.37	.36½	.37
600, E filtered	.26½	.27	.26½	.27	.26½	.27
600, D filtered	.29½	.30	.29½	.30	.29½	.30
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.39	.40	.39	.40	.39	.40
†122-124 White Crude Scale Wax	.04¾		.05	.05¼	.05	.05⅛
†124-126 White Crude Scale Wax	.05		.05¼	.05⅜	.05¼	.05⅜

*At Warren, Pa. †At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09		.08½	.09	.08½	.09
No. 3 color, 300 vis., pale oil	.10½	.11	.11	.11½	.11	.11½
No. 3½ color, 500 vis., pale oil	.12		.12½	.13	.12½	.13
No. 4 color, 750 vis., pale oil	.15	.15½	.15	.15½	.15	.15½
No. 5 to 6 color, 200 vis., red oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
No. 5 to 6 color, 300 vis., red oil	.09¼	.09½	.09¼	.09½	.09¼	.09½
No. 5 to 6 color, 500 vis., red oil	.10¼	.10½	.10½	.11½	.10¼	.11½
No. 5 to 6 color, 750 vis., red oil	.13¼	.13½	.13¼	.14	.13¼	.14
No. 2½ color, 200 vis., pale filtered	.11½		.11¾	.12¼	.11¾	.12¼
No. 2½ color, 300 vis., pale filtered	.13	.13¼	.13½		.13½	
No. 2½ color, 500 vis., pale filtered	.15½	.16	.15½	.16	.15½	.16
No. 2½-3 color, 750 vis., pale filtered	.18	.20	.18	.20	.18	.20
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13¼	.13	.13¼	.13	.13¼
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11¼	.11½
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.11¾	.12
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13½	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.15½	.15¾

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Feb. 5	Jan. 29	Jan. 22
Gasoline, U. S. Motor, 58-60, 437	.10¼	.10¼	.10¼
Kerosene, water white, 41-43	.08½	.09	.09
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05	1.05	1.05
†Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.11¾	.11¾	.11¾
28 pale Paraffin Oil	.07½	.07½	.07½
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.11	.11	.11
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.05⅜	.05⅜	.05½
125-127 a.m.p., per lb.	.05⅝	.05¾	.05¾
130-132 a.m.p., per lb.	.06⅜	.06⅜	.06½
133-135 a.m.p., per lb.	.07⅛	.07⅛	.07¼
135-137 a.m.p., per lb.	.07⅝	.07¾	.07¾
Petrolatum in barrels, carloads lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03½	.03½	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage, 5.0c a barrel extra. †Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Feb. 5	Jan. 29	Jan. 22
Gasoline, U. S. Motor, 58-60 437, in cases	.2640	.2640	.2640
Kerosene, standard white, in cases	.1765	.1765	.1765
Kerosene, water white, in cases	.1890	.1890	.1890
600, steam refined cylinder stocks, in bbls.	.30½ .31	.31 .32	.31 .32
635, steam refined	.32 .33	.32 .33	.32 .33
650, steam refined	.36 .37	.37 .38	.37 .38
600, Pennsylvania flash	.38 .39	.39 .40	.39 .40
630, Pennsylvania flash	.43 .44	.43 .44	.43 .44
600, Warren E	.34 .35	.34 .35	.34 .35
600, Oil City E	.33	.33	.33
Light 140-150 Bright Stocks	.46	.47	.47
Dark 140-150 Bright Stocks	.45	.46	.46

LOS ANGELES EXPORT PRICES

	Feb. 5	Jan. 29	Jan. 22
Kerosene, water white	.05½ .06	.05½ .06	.05½ .06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07½ .08	.07½ .08	.07½ .08

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11) ..... .80
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE
Carson and Hutchinson

Below 32 gravity	$ .72
32-32.9	.78
33-33.9	.81
34-34.9	.84
35-35.9	.87
36-36.9	.90
37-37.9	.93
38-38.9	.96
39-39.9	.99
40-40.9	1.02
41-41.9	1.05
42-42.9	1.08
43-43.9	1.11
44 and above	1.14

Wheeler County

Below 30 gravity	$ .70
30-30.9	.76
31-31.9	.82
32-32.9	.88
33-33.9	.91
34-34.9	.94
35-35.9	.97
36-36.9	1.00
37-37.9	1.03
38-38.9	1.06
39-39.9	1.09
40-40.9	1.12
41-41.9	1.15
42-42.9	1.18
43-43.9	1.21
44 and above	1.24
Gray County	See gravity table

Humble Oil & Refining Co., and Magnolia Petroleum Co., January 24, 1929.

WEST TEXAS

Iatan*	Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)†	$ .65
Chalk†	.65
Mitchell†	.65

*Includes Howard County and Westbrook Fields. Marland Refining Co. pays $1.05 for Howard County crude, effective May 21.

†Magnolia Petroleum Co., January 26, 1929.
‡Posted by Humble Oil & Refining Co., Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11)	$ .75
Bellevue (January 26, 1929)	1.20
Urania (Oct. 16, 1928)	.90
East El Dorado (March 16, 1927)	1.00
Other fields	See gravity table

*Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST
(Goose Creek, Hull, Liberty, West Columbia, Orange Boling, Sour Lake, Humble, Sugarland, Raccoon Bend, High Island, Pierce Junction and Spindletop.)

Grade A (March 14)*	$1.20
Grade B	See gravity table
Jennings, La. (March 14)†	$1.05
Saratoga, Batson, Daytona, (March 14, 1927)‡	1.20
Markham (March 14)‖	1.00
High Island (December 14)‖	1.00

*Humble Oil & Refining Co. and other major buyers. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. ‖The Texas Company.
‖Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective January 26, 1929)

Rock Creek, Wyo.	$1.18
Salt Creek	See gravity table
Big Muddy	1.28
Grass Creek, heavy (July 27, 1928)	.90
Grass Creek, light	1.36
Mule Creek (May 1, 1928)	1.10
Elk Basin	1.36
Lance Creek	1.38
Poison Spider (March 14, 1927)	1.00

(Continued on Page 126)

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans. N. C. Tex. 1	No. La. and Arkansas 2	Smackover, Ark. 3	Stephens, Ark. 4	Gray County (Texas Panhandle) 5	Salt Creek, Wyo. 6	Grade B & Light Crude (G. Coast) 7	Somerset (South Central Texas) 8
24 and above	....	....	.90	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....
Below 25	.60	....	....	....	....	....	1.05	....
25 to 25.9	.66	....	....	....	....	....	1.07	....
Below 26	....	....	....	....	....	....	....	....
26 to 26.9	.72	....	....	....	....	....	1.09	....
27 to 27.9	.78	....	....	....	....	....	1.11	....
Below 28	....	.78	....	.70	.69	....	....	....
28 to 28.9	.84	.84	....	.73	.69	....	1.13	....
29 to 29.9	.90	.90	....	.78	....	.90	1.15	....
30 to 30.9	.96	.96	....	.82	.81	.96	1.17	....
31 to 31.9	1.02	1.02	....	.86	.87	1.02	1.19	....
32 to 32.9	1.08	1.08	....	.90	.93	1.08	1.21	1.05
33 to 33.9	1.11	1.13	....	....	.96	1.11	1.23	1.07
34 to 34.9	1.14	1.14	....	....	.99	1.14	1.25	1.09
35 to 35.9	1.17	1.17	....	....	1.02	1.17	1.27	1.11
36 to 36.9	1.20	1.20	....	....	1.05	1.20	....	1.13
37 to 37.9	1.23	1.23	....	....	1.08	1.23	....	1.15
38 to 38.9	1.26	1.26	....	....	1.11	....	....	1.17
39 to 39.9	1.29	1.29	....	....	1.14	....	....	....
40 to 40.9	1.32	1.32	....	....	1.17	....	....	....
41 to 41.9	1.35	1.35	....	....	1.20	....	....	....
42 to 42.9	1.38	1.38	....	....	1.23	....	....	....
43 to 43.9	1.41	1.41	....	....	1.26	....	....	....
44 and above	1.44	1.44	....	....	1.29	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule January 24, 1929, making price below 26 gravity 60 cents per barrel, 26-26.9 gravity 65 cents, 27-27.9 gravity 70 cents, 28-28.9 gravity 75 cents, 29-29.9 gravity 80 cents, 30-30.9 gravity 90 cents and 31-31.9 gravity $1, with balance of the price schedule as shown.

Oklahoma—Humble Oil & Refining and Carter Oil Co. January 24, Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, January 25.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola, Iatan posted a flat price of 93 cents by Magnolia on January 14, 1925), Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, January 25, Humble Oil & Refining Co., January 24.

Kansas—Prairie, Sinclair and The Texas Company, January 25; Carter, January 24.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule effective January 26 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and ElDorado, Ark., light crude. The Texas Company January 24 posted prices below 28 gravity at 6 cents differential per degree with minimum of 60 cents for all below 24 gravity.

Column 3—February 6, Louisiana Oil Refining Corp.; February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 16, Atlantic Oil Producing Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., January 28.
Column 5—Humble Oil & Refining Co., Magnolia Petroleum Co., January 24, 1929.
Column 6—Midwest Refining Co., January 26, 1929. All crude over 37 gravity $1.23 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers January 26 (schedule ends 35 and above), with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and $1.37 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

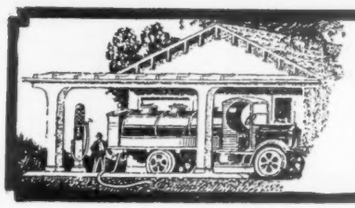
Gravity—	Richfield Torrance Olinda-Brea Alamitos Hts. Signal Hill Seal Beach Huntington Beach Alamitos Hts. Rosecrans-Dom'gues Inglewood 1	Whittier La Habra Coyote Hills 2	Midway-Sunset Elk Hills Lost Hills Belridge Buena Vista Hills 3	Montebello 4	Santa Fe Springs 5	Coalinga 6	Wheeler Ridge 7	Orcutt 8	Ventura 9	Kern River Newhall-McKittrick 10
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.85	.85	.50
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.85	.85	.50
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.85	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.92	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.93	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.95	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	.97	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.22	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	....	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	....	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	....	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	....	....
38 to 38.9	1.71	....	....	....	1.60	....	....	....	....	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	....	....
40 to 40.9	1.83	....	....	....	....	....	....	....	....	....
41 to 41.9	1.89	....	....	....	....	....	....	....	....	....
42 to 42.9	1.95	....	....	....	....	....	....	....	....	....

*Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity. Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.
Column 2—Whittier crude, 14 to 32.9 gravity; Coyote Hills, 14 to 30.9 gravity.
Column 3—Midway-Sunset, Buena Vista and Elk Hills, 14 to 33.9 gravity; Lost Hills, 14 to 34.9 gravity.

Columns 8 and 9 posted by Union Oil Co. only.

†On October 2, 1928, Standard Oil Co. of California discontinued contracting for purchase of Kern River crude and on October 20 established following prices on grades below 14 gravity: 11 to 11.9 degrees at 45 cents, 12 to 19 degrees at 50 cents.

On December 1, 1928, the Union Oil Co. adopted the above schedule of the Standard on Kern River crude and in addition posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11-11.9 gravity, 45 cents; 12 to 12.9 gravity, 55 cents; and 13 to 13.9 gravity at 65 cents. All grades of Elwood crude were cut 7 cents.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Feb. 5.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago, dist.	14.0	15.0	...	12.0
Decatur, Ill.	14.2	15.2	...	12.1
E. St. Louis	13.4	14.4	...	11.2
Joliet	14.4	15.4	...	12.3
Peoria	14.2	15.2	...	12.1
Quincy	14.2	15.2	...	11.9
Davenport, Ia.	17.5	18.5	3.0	12.3
Des Moines	17.5	18.5	3.0	12.3
Keokuk	17.5	18.5	3.0	12.3
Sioux City	17.1	18.1	3.0	11.9
Duluth, Minn.	17.5	18.5	2.0	12.9
Mankato	17.1	18.1	2.0	12.7
Minneapolis	17.2	18.2	2.0	12.9
La Crosse, Wis.	17.2	18.2	2.0	13.0
Milwaukee	16.1	17.1	2.0	11.9
Madison	16.3	17.3	2.0	12.1
Detroit, Mich.	17.8	18.8	3.0	13.7
Grand Rapids	17.7	18.7	3.0	13.6
Saginaw	17.9	18.9	3.0	13.8
Evansville, Ind.	17.0	18.0	3.0	13.0
Fort Wayne	17.4	18.4	3.0	13.4
Indianapolis	17.2	18.2	3.0	13.2
South Bend	17.4	18.4	3.0	13.4
Fargo, N. D.	18.9	19.9	2.0	14.9
Huron, S. D.	19.3	20.3	4.0	13.7
Sioux Falls	18.1	19.1	4.0	13.4
K. C., Mo.*	16.9	17.9	3.0	10.6
Springfield*	16.8	17.8	3.0	11.5
St. Louis*	16.9	16.9	2.5	11.3
St. Joseph	16.5	17.5	3.0	11.2
Wichita, Kans.	14.8	15.8	2.0	10.8
Bartlesville, Ok.	15.5	16.5	3.0	10.5

*State tax 2 cents; remainder city tax.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	11.9
V. M. & P. naphtha	16.2	12.9
Cleaner's naphtha	15.0	13.9
Stanisol	19.0	14.9

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Effective January 5.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2¼ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	21.0	4.0	16.5
Savannah	20.0	22.0	4.0	14.5
Birm'ham, Ala.	19.0	21.0	4.0	13.0
Mobile	21.0	23.0	4.0	15.0
Montgomery	22.0	24.0	4.0	16.5
Clarks'le, Miss.	21.0	23.0	5.0	13.0
Jackson	18.0	20.0	5.0	14.5
Natchez	19.0	21.0	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla.	22.0	24.0	5.0	13.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	13.5
Tampa	22.0	24.0	5.0	13.5
Lexington, Ky.	20.0	21.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	21.0	23.0	5.0	15.5
Catlettsburg	21.0	23.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulf port tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco	17.0	21.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	3.0	16.5
Tacoma	16.5	20.5	3.0	16.5
Spokane	20.5	24.5	3.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	16.0	20.0	2.0	12.0
Fort Worth	13.0	16.0	2.0	12.0
Houston	16.0	20.0	2.0	13.0
San Antonio	13.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	19.0	2.0	13.0
Muskogee, Ok.*	15.0	16.0	3.0	12.0
Okla. City*	16.0	18.0	3.0	12.0
Tulsa*	17.0	19.0	3.0	10.0
Ft. Smith, Ark.	16.0	19.0	5.0	13.0
Little Rock	18.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	16.25	18.25	2.0	12.25
McCook	17.75	19.75	2.0	13.75
Norfolk	16.75	18.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff	17.75	19.75	2.0	13.25

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	16.0	18.0	3.0	14.5
Pueblo	17.0	20.0	3.0	14.5
Grand Junction	21.5	24.5	3.0	18.0
Casper, Wyo.	18.0	21.0	3.0	13.0
Cheyenne	19.0	22.0	3.0	14.5
Butte, Mont.	22.5	25.5	3.0	19.0
Helena	22.5	25.5	3.0	19.0
Salt Lake, Utah	21.0	24.0	3.5	17.0
Albu'que, N. M.	22.0	25.0	5.0	17.0
Boise, Idaho	23.5	26.5	4.0	19.0
Twin Falls	23.5	26.5	4.0	19.0

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlantic City	16.0	20.0	2.0	13.0
Newark, N. J.	16.0	20.0	2.0	13.0
Annapolis, Md.	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	13.0
Cumberland	18.0	22.0	4.0	13.0
Washington	16.0	20.0	2.0	13.0
Danville, Va.	19.0	23.0	5.0	13.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Ch'rist'n, W. Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg	18.0	22.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	18.0	22.0	4.0	13.0
Hickory	18.0	22.0	4.0	13.0
Mt. Airy	18.0	22.0	4.0	13.0
Salisbury	18.0	22.0	4.0	13.0
Ch'leston, S. C.	19.0	23.0	5.0	13.0
Columbia	19.0	23.0	5.0	13.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16.0	18.0	...	15.0
New York*	16.0	18.0	...	15.0
Buffalo	16.0	18.0	...	14.0
Rochester	16.0	18.0	...	14.0
Syracuse	16.0	18.0	...	15.0
Boston, Mass.	18.0	20.0	2.0	16.0
Augusta, Me.	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt.	19.0	20.0	4.0	15.0

*Prices in steel barrels.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.*	16.5	19.5	5.0	16.0
Baton Rouge	15.0	18.0	4.0	14.5
Alexandria	16.0	19.0	4.0	16.0
LaFayette	16.0	19.0	4.0	14.0
Lake Charles	16.5	19.5	4.0	16.0
Shreveport	16.0	19.0	4.0	15.0
Knoxv'le, Tenn.	18.0	22.0	3.0	16.0
Memphis	16.0	20.0	3.0	12.5
Chattanooga	17.5	21.5	3.0	16.0
Nashville	17.0	21.0	3.0	16.0
Bristol	18.0	22.0	3.0	14.0
Lit. Rock, Ark.	18.0	21.0	3.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
All Ohio points	17.0	18.0	3.0	12.0

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	15.0	*20.0	...	14.0
Philadelphia	15.0	*20.0	...	14.0
Scranton	15.0	*20.0	...	14.0
Allentown	15.0	*20.0	...	14.0
Altoona	15.0	*20.0	...	14.0
Erie	15.0	*20.0	...	14.0
Dover, Del.	18.0	20.0	3.0	14.0
Wilmington	18.0	20.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	18.0	20.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven	18.0	20.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

TANK WAGON CHANGES

January 26—Standard Oil Co. of Louisiana reduced gasoline tank wagon and service station price 1 cent in Louisiana and Arkansas except Shreveport where no change was made.

January 30—Continental Oil Co. reduced gasoline tank wagon and service station prices 1 cent at most points in Rocky Mountain states. At Denver, service station only was reduced 1 cent. No change made at Pueblo and Albuquerque.

January 29—Standard Oil Co. of Nebraska reduced gasoline tank wagon and service station prices 1 cent in Nebraska.

January 31—Standard Oil Co. of New York reduced gasoline tank wagon and service station prices 2 cents in New York except metropolitan New York. Same company reduced gasoline tank wagon and service station prices 1 cent in Vermont.

February 4—Standard Oil Co. of Kentucky reduced gasoline tank wagon and service station prices 1 cent in entire territory except at points where prices were below normal.

February 5—Standard Oil Co. of Ohio reduced gasoline service station prices 1 cent in Ohio reducing differential between tank wagon and service station to 1 cent.

CRUDE OIL PRICE CHANGE

January 28—Atlantic Oil Producing Co. and the Louisiana Oil Refining Corp. reduced Stephens County crude oil 5 cents.

LUBRICANTS SLACKEN IN COASTAL MARKET

HOUSTON, Tex., Feb. 4.—Further slackening of demand for lubricating oil was the chief development in Gulf Coast refinery markets the past week together with the fact that February usually is a slack month. The competition of other oils, namely paraffin base products, is claimed to be having a bearish effect on the situation. Red oils apparently are the slowest although the 300 and 500 viscosity pale oils are suffering, having to meet competitive prices.

Fuel oil on the other hand is steadier than it has been for months but the market has reflected no strengthening in prices. Bunker oil in cargo lots still can be obtained as low as 65 cents although oil for bunkering ships on the channel is bringing around 90 cents. One large refiner is completely out of the picture, having recently changed from gas to fuel oil as fuel. Another refiner has disposed of his entire output for a month. The latter is not bunker oil but a low-grade fuel product.

Gas oils were unchanged with the demand being chiefly for cracking stock and material of low sulphur content. Other gas oils are easily available.

TULSA GEOLOGISTS MEET

At the regular meeting of the Tulsa Geological Society held Monday evening, February 4, W. C. Spooner of Shreveport, La., delivered a very interesting paper entitled "Resume of the Geology of Louisiana and Arkansas." The discussion of this paper was led by Sidney Powers, chief geologist of the Amerada Petroleum Corp.

JOINS TRANSCONTINENTAL

A. H. Blackall, who has been connected with the sales department of the Marland Refining Co. for the past three years, has been appointed assistant sales manager of the Transcontinental Oil Co. with offices in Tulsa. Mr. Blackall succeeds T. L. Alford, who recently resigned.

INCREASE PLANT CAPACITY

The Homaokla Oil Co. is increasing the capacity of its refinery from 1,500 bbls. to 3,000 bbls. of crude oil daily. The refinery is located at Allen, Okla.

CRUDE OIL PRICES

(Continued from Page 125)

Notches (March 14, 1927)	.61
Rex Lake (February 22)	1.10
Osage	1.38
Lost Soldier (contract)	.85
Hamilton Dome (March 14, 1927)	.85
Greybull-Torchlight (July 27, 1928)	1.48
Cat Creek (Montana) (July 27, 1928)	1.48
Sunburst (Montana) (May 18, 1928)	1.66
Artesia (July 27, 1928)	1.08
Hogback (New Mexico) (July 27, 1928)	1.40

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (January 11)*	$ .80
Mirando (January 7)†	.80
Rockdale-Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.37
39-39.9 gravity	1.39
40 and above	1.41
Thrall‡	
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.

EASTERN STATES

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (July 13)	1.85
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.65
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25 1929)	1.75
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Sept. 14, 1928)	1.75
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.40

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective January 25, 1929)

Lima	$1.50
Wooster	1.62
Illinois	1.45
Indiana	1.27
Princeton	1.45
Plymouth	1.18
Waterloo (November 17, 1926)	1.35
Western Kentucky (Sept. 17, 1928)	1.53
Midland, Mich. (January 15, 1929)*	1.79
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in lines in Stoll Oil Refining Co. in Oil City, Ky. (Oct. 1, 1928)§	1.70
Oil Springs (Canada)¶	1.97
Petrolia (Canada)¶	1.96

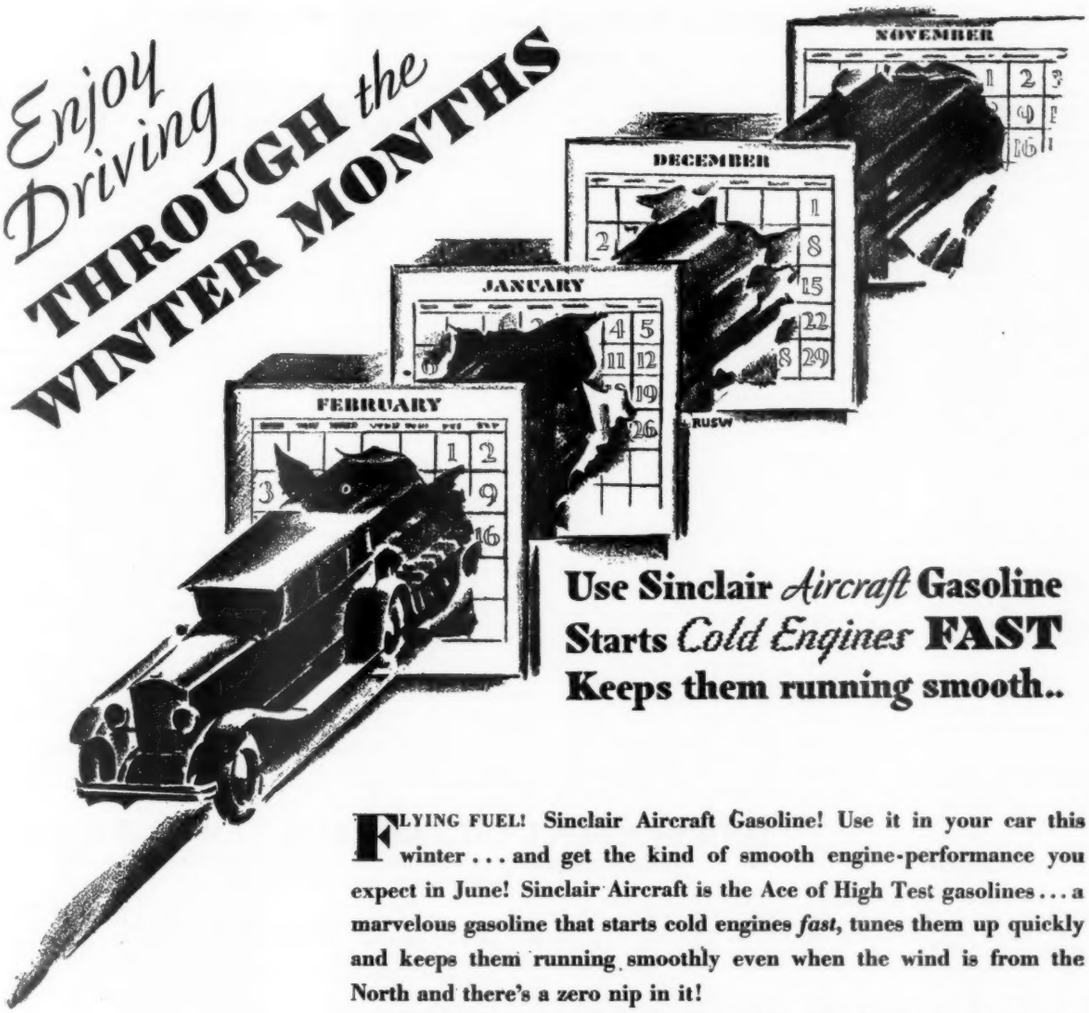
*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports)	$1.15

Note—Due to the fact that the exportation of Tuxpan light crude has become a negligible factor, prices will no longer be published.

Enjoy Driving **THROUGH the WINTER MONTHS**



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SINCLAIR REFINING COMPANY, INC., 45 NASSAU STREET, NEW YORK
ATLANTA BOSTON CHICAGO HOUSTON KANSAS CITY

SINCLAIR AIRCRAFT GASOLINE

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Oil Securities Had But Narrow Range

Generally Weak With No Exceptional Fluctuations Except in Standard of Indiana Issue. Activity Was Spotty

By Special Correspondent

CHICAGO, Feb. 5.—Shares of Standard Oil of Indiana stock touched a new high record on the Chicago Curb Exchange today, mounting to $107 shortly after the market opened. A reaction sent it to $104.50 with about 600 shares changing hands. It opened at $100 after closing Monday at $97.50.

The New York curb market was thrown into a tumult by a rush to buy the common stock of the Standard Oil Co. of Indiana. The first transaction was not straightened out until after 1 o'clock, when a sale of 70,000 shares at $100.25 a share, an overnight gain of $4.25, was arranged. The demand resulted from the declaration yesterday of a 50 per cent stock and an extra cash dividend. The stock mounted yesterday to $96, a gain of $3. It has recently sold on the curb as high as $103.

There was a decidedly spotty activity in the oil issues last week, with Independent Oil & Gas Co. and H. F. Wilcox Oil & Gas Co. both showing strength on the big board. The report that the Wilcox concern planned additional changes in its capital structure was borne out at the directors' meeting held in Tulsa on Monday, February 4. At this meeting the authorized capital was increased to 2,400,000 shares. There was no change in the dividend policy of the Wilcox stock.

While the oils as a group were rather weak, there was no exceptional fluctuation only in Standard of Indiana, which had a wide range.

Southwest Pennsylvania Pipe Line

The balance sheet of the Southwest Pennsylvania Pipe Lines as of December 31, 1928, follows:

Assets

Plant	$4,435,958.08
Less depreciation	2,500,230.70
	$1,935,727.38
Other investments:	
Railroad bonds*	$867,578.75
United States Gov. Secur.*	623,335.94
First mortgage 6 per cent	5,000.00
	$1,495,914.69
Accounts receivable	204,701.10
Cash	78,201.58
	$3,714,544.75

Liabilities

Capital stock	$1,750,000.00
Capital stock reduction acct.	1,367,507.33
Accounts payable	209,516.14
Profit and loss	387,521.28
	$3,714,544.75

*The market value of these securities on December 31, 1928, was $10,450.94 more than the value at which they are carried on our books.

Operating income for the year	$250,783.94
Miscellaneous rents paid	4,869.03
	$245,914.91
Rentals and interest	94,402.24
	$340,317.15
Adjust. of prof. and loss acct. for the year	32,682.97
	$307,634.18
Dividends paid during the year	560,000.00
Balance from profit and loss	$252,365.82

Eleven and four-tenths per cent of dividend paid April 1, 1928, and 54.7 per cent of dividend paid July 1, 1928, were from earnings prior to March 1, 1913; balance of dividend paid during the year was from current earnings. The payment of $15 per share on December 31, 1928, was from capital stock reduction account.

The present worth of the amount estimated as required to take care of the present annuitants, and present employes when and if they retire is $722,339.41; an increase of $27,953.58.

Cumberland Pipe Line

Cumberland Pipe Line Co. declared an extra dividend of $4 and the regular quarterly dividend of $1, both payable March 15 to stock of record February 28.

Cumberland Pipe Line Co. reports for year ended December 31, 1928, net profit of $102,133, equivalent to $3.40 a share (par $50) earned on 30,000 shares of stock, compared with $213,184, or $7.10 a share, on 30,000 shares of $100 par stock in 1927.

Profit and loss account for year 1928, compares as follows:

	1928	1927
Net profit	$102,133	$213,184
Dividends	*930,000	1,230,000
Deficit	$827,867	$1,016,816
Previous surplus	576,538	1,581,151
Adjustment	45,560	12,203
Restored from capital	1,500,000	
P. & L. sulplus	$1,294,231	$576,538

*All dividends paid during year were from earnings since March 1, 1913.

Balance sheet of Cumberland Pipe Line Co. as of December 31, 1928, compares as follows:

Assets

	1928	1927
Plant*	$1,351,633	$1,555,651
Gov. secur., etc.	1,110,681	1,810,354
Accts. rec.	428,874	331,678
Cash	189,815	101,554
Total	$3,081,003	$3,799,237

Liabilities

Capital stock	†$1,500,000	‡$3,000,000
Accts. pay.	286,772	222,700
Surplus	1,294,231	576,537
Total	$3,081,003	$3,799,237

*After depreciation. †Par $50. ‡Par 100.

Eureka Pipe Line

Report of Eureka Pipe Line Co. for year ended December 31, 1928, shows net income of $64,726 after depreciation, etc., equivalent to $1.29 a share earned on 50,000 shares of stock. This compares with $4,602, or 9 cents a share in 1927.

The report says: "A recast of earnings, taxes, expenses and dividends since March 1, 1923, as requested by United States Treasury Department, shows that all dividends paid in 1928 were from surplus at March 1, 1913."

Statement for year 1928, compares as follows:

	1928	1927
Net income	$64,726	$4,602
Dividends	200,000	200,000
Deficit	$135,274	$195,398
P. & L. surplus	2,282,840	2,418,114

Balance sheet of Eureka Pipe Line Co. as of December 31, 1928, compares as follows:

Assets

	1928	1927
Plant*	$4,830,258	$5,234,071
Gov. secur., etc.	2,222,614	1,905,268
Accts. rec.	305,971	260,484
Cash	275,640	317,848
Total	$7,634,483	$7,717,671

Liabilities

Capital stock	$5,000,000	$5,000,000
Accts. pay.	351,643	299,557
Surplus	2,282,840	2,418,114
Total	$7,634,483	$7,717,671

*After depreciation.

The Eureka Pipe Line Co. announced that the increased gathering charge is now in effect on its system and has been collected on part of the gathered oil transported during the past year and will apply to all of such production transported during 1929.

A short extension of the line has been made to Cabin Creek, W. Va., and a small amount of Mid-Continent oil will be transported through the lines to the refinery at that point.

Indian Refining Co.

Indian Refining Co. is planning a strengthening of its financial structure, involving the elimination of all funded debt. Stockholders will vote on February 25 on a proposal of the directors to increase the authorized common stock by 275,000 shares, the new stock to be offered shareholders at the rate of one new share at $21 for every four shares now held. This offering has already been underwritten.

Proceeds of the stock sale will be used in part to retire the $1,200,000 first mortgage bonds, which will eliminate the company's funded debt. In addition, current bank loans of approximately $1,000,000, will also be liquidated, leaving the company with close to $2,000,000 to be added to its cash position.

British Controlled Oilfields

Notwithstanding lower prices for petroleum and refined products last year, causing a decrease of $725,000 in 1928 production receipts of British Controlled Oilfields, economies were effected by the company which resulted in but a small decline in net revenue, said Major Sir Richard Barnett, M. P., president, at the annual meeting held in Montreal. Profit and loss balance was increased from $4,277,236 at the end of 1927 to $5,017,802 at the close of 1928. An extensive program of drilling and exploration is scheduled for 1929.

Standard Oil of New York

Standard Oil Co. of New York declared regular quarterly dividend of 40 cents, payable March 15 to stock of record February 15.

Group No. 1 Oil Co.

Group No. 1 Oil Co. declared a dividend of $100 a share, payable February

INDEPENDENT OILS ON THE NEW YORK CURB

Quotation Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla. Members New York Curb Market

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	For week ended February 1 Sales	Open	High	Low	Last	Change
$6.75	.45	2⅞	.55	1½	.53	$5	Amer. Con. Oilfields	16,600	....	68	60	64	— 2
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	32,500	6⅝	7¼	5¾	6¾	+ ¼
..	..	2¾	1	4½	2¼	$10	Argo Oil	1,700	2¼	2½	2¼	2½	— ½
..	..	..	..	..	..	..	Arkansas Natural Gas						
85¼	60	40	20½	55	32¾	N.P.	British American	No sales.					
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	4,500	3⅞	4	3⅛	3⅞	....
..	..	58¾	40¼	90⅞	54	$20	Cities Service	75,600	90⅛	91½	90	91⅜	+ 1
..	..	95⅝	87	103½	94½	100	Cities Service, pfd.	3,500	97½	98	96¾	97¼	— ¾
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	100	9	9	9	9	....
3½	1¾	3⅞	1⅛	3¼	76	1	Colombia Syndicate	9,100	1½	1⅝	1⅜	1½	....
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	2,200	8	8	8	8	....
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	17,000	10	10⅛	9¾	9¾	— ⅛
..	..	3	.50	3¼	.76	N.P.	Crown Central	900	1⅞	1⅞	1⅛	1¼	— ⅛
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	3,900	25¾	25¾	25⅜	25⅝	+ ⅛
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	1,600	3¾	4	2¼	3⅜	— ⅛
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	500	27½	27½	27½	27½	....
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	10,500	155¾	155¾	145⅛	151	— 5
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	20,600	2⅜	2⅝	2	2	— ⅜
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	500	2⅛	2⅛	2⅛	2⅛	— ¼
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	4,200	5¼	5¼	5	5¼	— ⅛
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining	1,700	32	32⅜	31½	32	— ⅛
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	1,100	71¼	73⅝	71¼	72½	+ 1½
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	27,300	89	89	78	78	—13
34	12½	52	12	48½	32	N.P.	Margay Oil	No sales.					
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	3,700	3⅝	5½	3⅝	5½	+ 2¾
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	8,800	1⅜	1½	1⅜	1⅜	— ⅛
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	3,500	19⅞	20	19	19½	+ ¼
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	2,900	4⅝	4⅝	4¼	4½	— ⅛
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	1,900	8	8	7½	7½	— 1
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	3,700	11⅛	11¾	11	11¾	+ ¼
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	1,000	2⅛	2⅛	2	2	— ⅛
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	4,200	9	9⅛	8½	8¾	— ⅜
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	400	6¾	6¾	6⅜	6⅜	— ⅛
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	300	12½	12½	12	12	— ½
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	3,200	6	6	5½	5⅝	— ⅜
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	5,100	10½	10¼	9¼	9¼	— 1
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	600	5½	5½	5½	5½	— ⅜
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	5,500	23¼	23¼	22	23	— ⅛
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	1,100	12¾	14	12⅛	12¾	— 1⅜
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	2,300	12	12	10¾	11	— 1⅞
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	No sales.					
8	4½	7⅞	4¼	9⅛	4¾	5	Venezuelan Petrol	3,100	5½	5½	5⅛	5¼	— ⅛
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	22,800	6¾	9	6¾	7¼	+ 1⅝
6½	6	6	1¾	8⅝	2⅛	25	Y Oil & Gas (new)	3,100	5¼	5⅝	4	5¼	+ ¼

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis. Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended February 2 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27½ (sh)	922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	21,200	33½	34¾	31½	34	— ½
74	39⅞	82½	35⅛	85	51¼ (sh)	209,180	N.P.	American Republics Corp.	.....	.....	5,100	54	56½	52⅛	55⅞	— 1⅞
60	44¾	50¼	35	53⅜	37½	$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	49,000	45½	46	45¼	46	+ ¾
128⅜	97	131⅜	104	66⅜	50	50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	193,900	57¾	62½	53½	61	+ 2⅝
33½	23½	35½	20¾	53	20	35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	264,800	43⅛	46	40	45¾	+ 3⅞
94¼	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	7,700	73⅝	74⅜	71	74	— ½
72	50¼	175¾	60⅛	167	79	25,000,000	100	Houston Oil	.....	.....	2,400	87	89¾	86¾	88	+ ½
34	19⅝	32¾	17⅝	38⅜	21¾ (sh)	959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	40,900	31¼	31⅝	30	31½	+ ¼
12¾	7½	12⅛	7⅝	39⅝	9	8,203,080	$10	Indian Refining	.....	May 31, 24	217,900	38¾	42¾	32½	36	— 2
25⅞	16½	37¾	20½	39⅛	27⅜ (sh)	3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	1,900	28	29	27½	29	+ 1
19⅞	12	18⅛	10	19¾	9⅜ (sh)	1,237,078	N.P.	Louisiana Oil Refining	.....	.....	21,400	14½	15¾	14	15½	+ ½
28	16½	22¾	12	25½	12½ (sh)	330,000	N.P.	Maracaibo Oil	.....	.....	1,500	14	15	14	15	— ½
63⅜	49¼	58½	31	49¾	33 (sh)	2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	51,400	39¾	40⅞	37½	40⅜	+ ⅜
13¾	6	9¼	3	73	4⅝ (sh)	945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	172,800	48¼	58½	46½	53	— 5
37	20½	39⅜	25½	44½	25⅛ (sh)	1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	53,500	32½	33⅞	31½	33	— ⅜
104¼	90	105	97	120½	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	200	120⅝	120⅝	120	120⅝	+ ⅜
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	18,200	4	4½	4	4¼	.....
76½	56⅛	65⅞	40⅛	54⅞	38¼	$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	4,900	44¼	45⅜	42	43½	— ¾
78⅜	56⅞	66⅜	40¼	58⅞	37¾	121,097,900	50	Pan American P. & T. B	.....	Nov. 15, 24	49,100	45	45¾	42⅞	44⅞	— 1
46	30	37⅞	16¾	28⅜	15½ (sh)	400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	600	15	15½	14⅜	15½	— 3
32	4½	18⅞	8	21¾	11½ (sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	3,800	11¼	12	9⅞	10½	— 1½
99⅜	51	83	54	108	70	$2,935,200	$100	Panhandle P. & R. Pfd.	.....	July 2, 23	200	72	75	65	65	— 5
57⅜	40	60¼	36¼	53⅞	35¼ (sh)	2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	327,100	38½	40	37¼	40	+ ½
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	8,500	2½	2¾	2½	2½	— ⅛
7	2¼	5½	2½	7	3½ (sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	9,500	5	5¼	4⅞	4⅞	— ¼
60¼	48	55½	45⅝	68	46	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	68,300	59⅛	60½	58	60⅜	— ⅜
								Prairie Pipe	.....	.....	14,260	54	57¼	54	55½	.....
20¾	11	33⅞	16¾	29⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	6,200	20	21	19¾	21	— ¼
41⅝	30¾	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	3,000	41⅛	42	39½	40	.....
31	25¼	33½	25	31⅝	19	75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	31,800	24¾	25	23½	25	+ ⅛
27½	22	28⅝	25⅜	56	23	47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	38,600	43½	45⅝	41⅜	45½	+ 1
57⅜	47⅜	54½	44¼	64	44⅝ (sh)	611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	3,300	51⅜	51⅜	50¼	51½	— ¼
48⅝	40½	47⅞	41⅜	57½	40⅝ (sh)	£30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	200	47	48	45⅜	45⅜	— ⅛
31	24	31¾	24⅝	39¼	23¼ (sh)	20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 51, 28	56,800	27⅛	27¾	26½	27⅜	.....
28⅜	15⅛	26⅜	14¼	27¼	18⅛	$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	17,100	20⅝	21⅞	19⅞	20¾	— 1¼
24⅞	16¾	22⅜	15	46¾	17⅜ (sh)	4,501,915	N.P.	Sinclair Consolidated	.....	.....	324,200	37¾	39⅝	36¼	39¼	— ¼
99½	90	104½	97	110	102½	$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	200	111	111	110⅛	110⅛	+ ⅛
37⅛	26⅝	37⅜	24⅛	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	20,100	35¼	36⅞	34⅛	36	— 1
63⅝	51½	60¾	50⅜	80	53	(sh) 12,594,098	N.P.	Standard Oil of California	65½cQ	Dec. 15, 28	40,600	66½	68¼	64¾	66⅜	— 1½
46⅜	37½	41⅜	35⅛	59⅜	37¾	$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	121,800	51	52	50	50½	— 1⅛
47¼	30⅜	34⅛	29¾	44¼	28¾	427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	181,700	41⅞	43⅜	40	41½	— 1
41⅝	30⅛	34⅞	30	77	31½ (sh)	1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	19,800	61	62	60	61	— 1
5¼	1	6½	3⅛	14¼	2½ (sh)	1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	59,400	7¾	8¾	7⅛	8¾	+ ⅜
58	48	58	45	74¾	50	$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	65,400	60½	61⅞	59⅝	61½	.....
19½	12	18⅞	12	26⅝	12⅛	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	44,100	17¾	19½	16⅜	18⅜	+ 1¾
39¼	27	29⅛	19	41½	19⅝ (sh)	2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	4,900	32	33⅜	30	30	— 3½
103	87¼	90⅛	85	100⅛	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1.25Q	Nov. 15, 28	1,000	94	95	93¼	93¼	— 1¼
27	20⅞	19⅛	15⅜	25	14⅜ (sh)	4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	38,600	18½	19¼	18	19	+ ½
5½	3	10⅜	3¾	14¾	7¼ (sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	66,700	9⅝	10½	9¼	10	— ¼
58⅜	37¼	56½	39⅝	58	42¾	$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	90,700	51	52	49	50	— 1
120⅜	84¼	127½	94	128⅛	110	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	5,300	52¾	53	50⅞	53	+ 1½
30⅛	23½	34½	24½	44⅞	26 (sh)	356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	20,400	37¾	38⅝	37⅝	38½	— ½
29⅞	25⅛	27½	20	38	20⅛ (sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	13,900	31⅜	32⅞	30¼	32⅜	+ ⅜
								Wilcox Oil & Gas	.....	.....	16,300	25⅛	27¼	22¾	26½	+ 2½

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞	£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	6,500	15	16¼	15¼	15¼	— 1¼
....	....	3¾	¾	5	1¼ (sh)	500,000	N.P.	Atlantic Lobos	.....	.....	1,000	2¼	2¼	2⅛	2⅛	— ¼
76	65	69	50	56½	44½	1,000,000	25	Borne Scrymser	$1S.A.	Oct. 15, 28	150	43½	43½	43½	43½	+ ½
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	800	71¾	71¾	70¾	71	+ 3
82½	65	126	76½	161	117½	3,000,000	25	Chesebrough Mfg.	$1Q	Dec. 28, 28	No sales.					
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	32,423	18⅛	22	17¼	22	+ 3⅝
137	102	137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	100	67	67	67	67	+ 5
63¾	43	68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	150	68¾	69	68¾	69	+ 1½
32½	9⅞	13½	3½	13	4¼	16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	5⅞	6	5⅞	6	— ⅜
68½	52	68½	54	114¾	59¼	73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	10,900	96⅛	97	92¾	94¼	— 1⅞
144½	125½	182	123¾	290½	176½	20,000,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	650	304	308	301¾	304¾	— 6¾
....	....	64¾	37¾	104	56¾ (sh)	6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	4,600	98	99	95½	99	+ 1
72½	58	94½	61	91⅞	74⅜	$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	No sales.					
35½	28¾	39	28¼	55	35 (sh)	7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	41,800	61⅞	62¼	56¼	60	— 2⅜
20¾	12½	24	13½	32⅜	19⅜	$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	2,500	24⅝	24¾	23½	24¼	— ½
51½	27¼	44½	31¼	75	38½	5,000,000	100	New York Transit	.....	July 15, 26	500	76½	78	76½	77¼	+ ¼
80½	64	100	70	69	56½	2,000,000	50	Northern Pipe Line	$3S.A.	Jan. 2, 29	50	62½	62½	62½	62½	+ 1
67¾	55¾	67⅞	52	84	58½	60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	7,800	67	67⅞	64⅛	67½	+ ¼
24¾	15	39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	9,300	36	44½	35	42	....
220	84½	201½	175½	220	167	4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 28	No sales.					
74½	61¾	27¼	15½	19	15	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	500	16	16	14½	14½	— 2½
50	34½	41½	35	71⅞	36¾	2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	1,900	66	66⅞	63½	65½	— 1
56	47½	83	55½	102	70	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	No sales.					
70½	60½	81½	64⅝	95⅞	70⅞	228,415,463	25	Standard Oil of Indiana	62½cQ	Dec. 15, 28	143,330	90⅛	99¼	94⅞	98½	+ 8½
36½	16½	20⅞	14⅝	27¾	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	2,500	20⅜	20⅜	18	19⅜	— ⅞
134⅜	108	130	111½	179¾	122¼	17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	30,500	42¼	42⅞	40	42⅞	+ ⅛
51⅛	42	49½	40	54⅞	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	100	47¼	46¾	46¾	46¾	— ¼
372	288	87½	72	134	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	3,850	117¾	124	113¼	124	+ 6¼
21	15	21	14½	23½	16	861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109⅜	90¼	....	....	111	72	125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	20,000	123¾	124⅝	117⅛	122½	— 1½

*Also extras.

20 to stock of record January 31. Last previous dividend was also $100, paid October 15, 1928.

Texon Oil & Land Co. owns 62.8 per cent of the capital stock outstanding.

Buckeye Pipe Line

Buckeye Pipe Line Co. declared extra dividend of $1 and regular quarterly dividend of $1, both payable March 15 to stock of record February 21.

Pure Oil

Pure Oil Co. declared the regular quarterly dividend of 25 cents on the common, payable March 1 to stock of record February 9.

Southern Pipe Line

Improvement in the pipe line situation is seen by Forrest M. Towl, president of the Southern Pipe Line Co. In a letter to stockholders, Mr. Towl declares the company should make a profit this year, and pay small dividends if conditions continue as favorable as at present. Mr. Towl says:

"Oil shipments to Philadelphia stopped in July, 1923, and final delivery was completed in September, 1925. Since that time the line has been kept in condition and we have tried to find some further use for it, and if our endeavors were not successful, to abandon or dispose of that portion of the line.

"After a careful examination, it was estimated that the junk value which we could expect to recover from that portion of the line between Millway and Matthews Farms, near Chester, Pa., a distance of about 45 miles, did not exceed $50,000. Pure Oil Pipe Line Co. of Pennsylvania

(Continued on Page 134)

Bureau of Mines Report for Month of December

According to reports received by the Bureau of Mines, Department of Commerce, from companies which operate gathering or lead lines, the production of crude petroleum in the United States during December, 1928, amounted to 79,448,000 bbls. a daily average of 2,563,000 bbls. This represents an increase over the daily average of November of 29,000 bbls. The daily average production of both the two leading states, Oklahoma and Texas, showed only small increases over the previous month, but the daily output of California, the third ranking state, recorded another material increase. This resulted primarily from the completion of large wells in the new deep sands at Santa Fe Springs. The West Texas area recorded a small increase in daily average production over November, but the Seminole district (Seminole City, Earlsboro, Searight, Bowlegs and Little River Pools continued to decline. This was counterbalanced by successful extension in the St. Louis and Maud areas nearby. The majority of the remaining producing states reported decreased daily output in December an exception being Kansas, which in December had just begun to reflect important discoveries near Wichita.

Stocks Increased

Total stocks of crude petroleum east of California increased approximately 800,000 bbls., this addition being composed of an increase in tank farm stocks of approximately 1,000,000 bbls. and a net withdrawal of about 200,000 bbls. in other classes of stock. Stocks of light crude in California increased for the first time in several months, but the greatest accumulation in that State occurred in stocks of heavy crudes, which rose to a new high level of 99,975,000 bbls.

Although a large part of the increase in gasoline stocks incident to declining winter consumption was compensated by withdrawals from fuel oil storage to satisfy increased demands for heating, the present heavy production of crude was reflected in total stocks of all oils which increased 4,958,000 bbls. in December and totaled 614,539,000 bbls. on December 31, 1928. The production of gas oil and fuel oil increased, but stocks east of California fell off nearly 3,000,000 bbls., indicating heavy domestic consumption. Little change of consequence, except for an increase in stocks, occurred in the statistics of lubricants. Stocks of wax continued to increase as exports remained below the average.

The daily average throughput of crude petroleum at refineries fell off slightly but remained at a relatively high level. Runs of foreign crude again decreased with a tendency to replace with domestic grades.

Daily average gasoline production fell off slightly in December, but remained well above the 1,000,000-bbl. mark. Daily average domestic demand for the month was 859,000 bbls., which was only 1 per cent below November, but 13 per cent above December, 1927. Exports of gasoline fell off materially from November to well below the average for the year. Stocks of gasoline continued to rise sharply, and on December 31, amounted to 33,066,000 bbls., which represents 34 days' supply, as compared with 29 days, supply on hand a month ago and 39 days' supply on hand a year ago. The domestic demand for kerosene increased materially but this was compensated by decreased exports. The production of gas oil and fuel oil increased, but stocks (east of California) fell off nearly 3,000,000 bbls., indicating heavy domestic consumption. Little change of consequence, except for an increase in stocks, occurred.

In the statistics of lubricants, stocks of wax continued to increase as exports remained below the average.

The refinery data of this report were compiled from schedules of 336 refineries, which had an aggregate daily crude oil capacity of 3,271,000 bbls. These refineries operated at 81 per cent of their recorded capacity in November.

This report was prepared under supervision of G. R. Hopkins, Petroleum Economics Division, E. B. Swanson, acting chief economist.

Production in the Seminole Field proper in December, 1928, amounted to 8,407,000 bbls., a daily average of 271,000 bbls. This represents a material decline from the daily average of the previous month. The St. Louis Field more than held its own in December, as efforts to extend it in all directions met with fair success and as the production of the old wells continued to hold up well.

The slow decline in the West Texas Fields was halted in December, when the average output was 348,000 bbls. as compared with 341,000 bbls. in November. Long Beach fell off, due to fewer completions, but Santa Fe Springs scored a sensational increase in output as completions of large wells became a daily occurrence.

Considerably more wells were drilling in the flush fields on December 31 than on November 30, though production at the former time was higher than ever before. The Seminole, Maud and St. Louis districts had 373 wells drilling on December 31, as compared with 304 the month previous. West Texas and Long Beach Fields each had a few more drilling wells on December 31 than on November 30.

Stocks of oil held in the Seminole Field showed a slight increase in December and on December 31 amounted to 17,766,000 bbls.

PRODUCTION AND GRAVITY

(Barrels of 42 U. S. gallons.)

	Dec., 1928 Total	Dec., 1928 Dy. av.	Nov., 1928 Total	Nov., 1928 Dy. av.	Dec., 1927 Total	Dec., 1927 Dy. av.	Average gravity
Seminole	8,407,000	271,000	*8,913,000	297,000	11,689,000	377,000	39.0
St. Louis-Pearson	4,131,000	133,000	3,929,000	131,000	.....	.....	40.0
West Texas	10,785,000	348,000	*10,234,000	341,000	7,903,000	255,000	30.0
Long Beach	5,794,000	187,000	5,870,000	196,000	3,360,000	108,000	26.0
Santa Fe Springs	3,021,000	97,000	1,641,000	55,000	1,203,000	39,000	33.0

*Revised.

STOCKS AT SEMINOLE

(Barrels of 42 U. S. gallons.)

	Dec., 1928	Nov., 1928	Dec., 1927
Producers' stocks	415,000	439,000	462,000
Tank farm stocks	17,351,000	17,025,000	14,916,000
Total stocks	17,766,000	17,464,000	15,378,000

RECORD OF WELLS, DECEMBER, 1928

	Completions: Oil	Gas	Dry	Total initial prod. (bbls.)	Aver. initial prod. (bbls.)	Drilling Decem'r 31
Seminole	29	1	12	22,100	800	213
St. Louis-Pearson*	51	...	3	41,700	800	160
West Texas	60	...	25	324,700	5,400	350
Long Beach	15	...	...	11,400	800	146
Santa Fe Springs	28	...	...	112,100	4,000	212

*Represents wells in Pottawatomie County as reported by The Oil and Gas Journal.

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES (BARRELS)

AT REFINERIES (and in coastwise transit thereto). Reported by location of storage:	Dec. 31, 1928	Nov. 30, *1928	Dec. 31, †1927
East Coast:			
Domestic	8,496,000	8,243,000	8,690,000
Foreign	4,306,000	3,773,000	2,768,000
Appalachian	2,183,000	2,235,000	1,871,000
Indiana, Illinois, etc.	2,939,000	2,982,000	2,777,000
Oklahoma, Kansas, etc.	5,530,000	5,849,000	4,871,000
Texas:			
Inland	2,184,000	1,885,000	1,432,000
Gulf Coast:			
Domestic	7,206,000	7,399,000	7,686,000
Foreign	207,000	179,000	219,000
Arkansas and Inland Louisiana	758,000	1,098,000	403,000
Louisiana Gulf Coast:			
Domestic	3,315,000	3,954,000	6,149,000
Foreign	1,359,000	1,153,000	1,046,000
Rocky Mountain	2,046,000	2,017,000	1,400,000
Total east of California	40,529,000	40,767,000	39,317,000

ELSEWHERE THAN AT REFINERIES:				
Domestic—Reported by fields of origin:				
Appalachian:				
N. Y., Pa., W. Va., Eastern and Central Ohio:	Gross	5,023,000	5,322,000	6,621,000
	Net	4,738,000	5,027,000	6,294,000
Kentucky:	Gross	913,000	961,000	1,168,000
	Net	764,000	810,000	1,040,000
Lima-Indiana:	Gross	1,344,000	1,397,000	1,287,000
	Net	1,162,000	1,214,000	1,134,000
Illinois-S. W. Indiana:	Gross	12,035,000	11,927,000	12,664,000
	Net	11,367,000	11,260,000	12,170,000
Mid-Continent:				
Oklahoma; Kansas; Central, North, West, and Panhandle Texas:	Gross	252,021,000	250,593,000	234,420,000
	Net	239,527,000	238,673,000	221,466,000
Northern Louisiana and Arkansas:	Gross	29,008,000	28,271,000	28,174,000
	Net	26,280,000	25,506,000	25,373,000
Gulf Coast:	Gross	18,858,000	18,855,000	18,365,000
	Net	18,304,000	18,402,000	17,922,000
Rocky Mountain:	Gross	25,522,000	25,750,000	27,281,000
	Net	25,501,000	25,718,000	27,238,000
Total pipe line and tank farm stocks east of California:	Gross	344,724,000	343,076,000	329,980,000
	Net	327,643,000	326,610,000	312,637,000
Foreign crude petroleum on Atlantic Coast		49,000	67,000	46,000
Foreign crude petroleum on Gulf Coast		210,000	175,000	38,000
Total refinery, pipe line and tank farm stocks of domestic and foreign crude petroleum east of California		368,431,000	367,619,000	352,038,000
CLASSIFICATION BY GRAVITY (approx.):				
East of California:				
Light crude (24 degrees and above)		320,015,000	319,196,000	303,539,000
Heavy crude (below 24 degrees)		48,416,000	48,423,000	48,499,000
California: Light		16,995,000	16,524,000	20,086,000
Heavy (including fuel)		99,975,000	98,529,000	93,719,000

*Revised. †Final figures.

ANALYSIS OF SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke, and asphalt in thousands of barrels of 42 U. S. gallons.)

	Decemb'r, 1928	Novemb'r, *1928	Decemb'r, 1927	Jan.-Dec., 1928	Jan.-Dec., †1927
NEW SUPPLY:					
Domestic production:					
Crude petroleum:					
Light	71,231	67,999	66,427	806,534	788,794
Heavy	8,217	8,032	8,524	93,830	112,335
Total crude	79,448	76,031	74,951	900,364	901,129
Natural gasoline	3,929	3,769	3,433	42,286	36,657
Benzol	253	241	212	2,810	2,562
Total production	83,630	80,041	78,596	945,460	942,348
Daily average	2,698	2,668	2,535	2,583	2,582
Imports:					
Crude	6,807	6,908	6,210	79,583	58,383
Refined	1,097	728	756	11,891	13,353
Total new supply all oils	91,534	87,677	85,562	1,036,934	1,014,084
Daily average	2,953	2,923	2,760	2,833	2,778
Change in stocks all oils	4,958	2,212	3,127	24,932	48,471
DEMAND:					
Total demand	86,576	85,465	82,435	1,012,002	965,613
Daily average	2,793	2,849	2,659	2,765	2,591
Exports:‡					
Crude	1,529	1,691	1,717	18,973	15,844
Refined	9,483	11,298	9,366	136,489	125,191
Domestic demand	75,564	72,476	71,352	856,540	804,578
Daily average	2,438	2,416	2,302	2,340	2,201
Excess of daily average domestic production over domestic demand	260	252	233	243	378
STOCKS (end of month):					
Crude petroleum:					
East of California:§					
Light	320,015	319,196	303,539	320,015	303,539
Heavy	48,416	48,423	48,499	48,416	48,499
California:					
Light	16,995	16,524	20,086	16,995	20,086
Heavy¶	99,975	98,529	93,719	99,975	93,719
Total crude	485,401	482,672	465,843	485,401	465,843
Natural gasoline at plants	608	404	734	608	734
Refined products	128,530	126,505	123,030	128,530	123,030
Grand total stocks all oils	614,539	609,581	589,607	614,539	589,607
Days' supply‖	220	214	222	222	228
Bunker oil (included above in domestic demand)	4,235	4,235	4,264	51,124	50,051

*Revised. †Final figures. ‡Includes shipments to noncontiguous territories. §Exclusive of producers' stocks. ¶Includes fuel oil. ‖Grand total stocks divided by daily average total demand.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM (Barrels)

(From Bureau of Foreign and Domestic Commerce)

	December, 1928 Total	December, 1928 Dy.av.	November, 1928 Total	November, 1928 Dy.av.	Jan.-Dec., 1928	Jan.-Dec., 1927†
Imports	6,807,000	219,600	6,908,000	230,300	79,583,000	58,383,000
From Mexico	1,293,000	41,700	1,960,000	65,300	17,279,000	26,019,000
From Venezuela	4,091,000	132,000	3,954,000	131,800	46,976,000	21,560,000
From Colombia	1,227,000	39,600	324,000	10,800	11,838,000	7,962,000
From other countries	196,000	6,300	670,000	22,400	3,490,000	2,842,000
Exports*	1,529,000	49,300	1,691,000	56,400	18,964,000	15,843,000
Domestic crude oil:						
To Canada	1,335,000	43,100	1,292,000	43,100	15,430,000	13,036,000
To other countries	194,000	6,200	399,000	13,300	3,533,000	2,807,000
Foreign crude oil	.....	.....	.....	.....	1,000	.....

*No crude shipments to territories. †Final figures.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS

	December, 1928 Total	December, 1928 Dy.av.	November, 1928 Total	November, 1928 Dy.av.	Jan.-Dec., 1928	Jan.-Dec., 1927*
Domestic petroleum by fields of origin:						
Appalachian	2,886,000	93,100	2,810,000	93,700	32,800,000	30,915,000
Lima-Indiana	175,000	5,600	238,000	7,900	1,649,000	1,366,000
Michigan	71,000	2,300	88,000	2,900	595,000	435,000
Illinois and S.W. Indiana	496,000	16,000	797,000	26,600	8,225,000	7,317,000
Mid-Continent	46,612,000	1,503,600	46,836,000	1,561,200	534,012,000	471,941,000
Gulf Coast	4,089,000	131,900	4,129,000	137,600	45,337,000	54,475,000
Rocky Mountain	2,511,000	81,000	2,609,000	87,000	30,758,000	31,391,000
Deliveries and exports	56,840,000	1,833,500	57,507,000	1,916,900	653,376,000	597,844,000
Deliveries	55,725,000	1,797,600	56,326,000	1,877,500	640,092,000	587,257,000
Foreign petroleum	6,790,000	219,000	6,873,000	229,100	79,407,000	58,908,000
Deliveries of domestic and foreign petroleum	62,515,000	2,016,600	63,199,000	2,106,600	719,499,000	646,165,000

*Final figures.

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY

(Barrels of 42 U. S. gallons.)

FIELD:	Dec., 1928 Total	Dec., 1928 Daily av.	*Nov., 1928 Total	*Nov., 1928 Daily av.	Jan.-Dec., 1928	Jan.-Dec., †1927
Appalachian	2,551,000	82,300	2,549,000	85,000	30,968,000	30,454,000
Lima-Indiana	123,000	4,000	117,000	3,900	1,677,000	1,835,000
Michigan	71,000	2,300	88,000	2,900	595,000	439,000
Ill.-S. W. Ind.	603,000	19,500	594,000	19,800	7,422,000	7,720,000
Mid-Continent	48,240,000	1,556,100	46,657,000	1,555,300	552,980,000	546,987,000
Gulf Coast	3,991,000	128,700	3,778,000	125,900	45,719,000	52,069,000
Rocky Mountain	2,294,000	74,000	2,340,000	78,000	29,021,000	‡30,329,000
California	21,575,000	696,000	19,908,000	663,600	231,982,000	231,196,000
Total U. S.	79,448,000	2,562,900	76,031,000	2,534,400	900,364,000	901,129,000
STATE:						
Arkansas	2,562,000	82,600	2,594,000	86,500	32,295,000	40,005,000
California	21,575,000	696,000	19,908,000	663,600	231,982,000	231,196,000
Colorado	208,000	6,700	217,000	7,200	2,722,000	‡30,329,000
Illinois	514,000	16,600	507,000	16,900	6,459,000	6,994,000
Indiana	95,000	3,100	93,000	3,100	1,053,000	852,000
Southwestern	89,000	2,900	87,000	2,900	963,000	726,000
Northeastern	6,000	200	6,000	200	90,000	126,000
Kansas	2,979,000	96,100	2,826,000	94,200	38,332,000	41,069,000
Kentucky	597,000	19,200	608,000	20,300	7,325,000	6,719,000
Louisiana	1,697,000	54,700	1,656,000	55,200	21,626,000	22,831,000
Gulf Coast	600,000	19,300	558,000	18,600	6,805,000	5,050,000
Rest of State	1,097,000	35,400	1,098,000	36,600	14,821,000	17,768,000¢
Michigan	71,000	2,300	88,000	2,900	595,000	439,000
Montana	346,000	11,200	304,000	10,100	3,925,000	5,058,000
New Mexico	107,000	3,400	90,000	3,000	959,000	1,226,000
New York	251,000	8,100	246,000	8,200	2,573,000	2,242,000
Ohio	535,000	17,300	531,000	17,700	7,030,000	7,593,000
Cent. and East.	418,000	13,500	420,000	14,000	5,443,000	5,884,000
Northwestern	117,000	3,800	111,000	3,700	1,587,000	1,709,000
Oklahoma	22,772,000	734,600	21,993,000	733,100	249,558,000	277,775,000
Osage County	1,415,000	45,700	1,403,000	46,800	19,667,000	23,586,000
Rest of State	21,357,000	688,900	20,590,000	686,300	229,891,000	254,189,000
Pennsylvania	845,000	27,300	824,000	27,500	9,876,000	9,526,000
Tennessee	1,000	.....	100	100	47,000	60,000
Texas	22,221,000	716,800	21,366,000	712,200	256,888,000	217,389,000
Gulf Coast	3,391,000	109,400	3,220,000	107,300	38,914,000	47,019,000
Rest of State	18,830,000	607,400	18,146,000	604,900	217,974,000	170,370,000
West Virginia	439,000	14,200	448,000	14,900	5,704,000	6,023,000
Wyoming	1,633,000	52,700	1,729,000	57,700	21,415,000	21,307,000
Salt Creek	1,010,000	32,600	1,070,000	35,700	14,103,000	14,399,000
Rest of State	623,000	20,100	659,000	22,000	7,312,000	6,908,000
CLASSIFICATION BY GRAVITY (approx.):						
Light crude	71,231,000	2,297,800	67,999,000	2,266,700	806,534,000	788,794,000
Heavy crude	8,217,000	265,100	8,032,000	267,700	93,830,000	112,335,000

*Revised. †Final figures. ‡Including Alaska.

RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, DECEMBER, 1928

INPUT—	Crude oil: Domestic	Crude oil: Foreign	Unfinished oils rerun	Natural gasoline	Total input (bbls.)
East Coast	8,323,000	5,864,000	1,021,000	317,000	15,534,000
Appalachian	2,930,000	.....	103,000	84,000	3,117,000
Indiana, Illinois, etc.	8,502,000	.....	884,000	225,000	9,611,000
Oklahoma, Kansas, etc.	9,369,000	.....	494,000	334,000	10,197,000
Texas	16,299,000	109,000	345,000	702,000	17,455,000
Louisiana and Arkansas	6,169,000	648,000	49,000	484,000	7,350,000
Rocky Mountain	2,153,000	.....	562,000	107,000	2,822,000
California	19,145,000	.....	*723,000	†1,144,000	21,012,000
United States total	72,899,000	6,621,000	4,181,000	3,397,000	87,098,000
Daily average, 12/28	2,351,600	213,600	134,800	109,600	2,809,600
Daily average, 11/28	2,353,100	218,500	148,800	105,400	2,825,800
Texas Gulf Coast	11,936,000	109,000	261,000	586,000	12,892,000
Louisiana Gulf Coast	4,073,000	648,000	38,000	374,000	5,133,000

OUTPUT—	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)	Wax (lbs.)
East Coast	4,684,000	666,000	8,177,000	872,000	19,477,000
Appalachian	1,407,000	307,000	625,000	438,000	8,001,000
Indiana, Illinois, etc.	5,107,000	524,000	2,898,000	318,000	6,193,000
Oklahoma, Kansas, etc.	5,182,000	796,000	3,165,000	237,000	3,569,000
Texas	6,921,000	1,122,000	6,791,000	808,000	6,285,000
Louisiana and Arkansas	2,525,000	491,000	3,325,000	57,000	7,025,000
Rocky Mountain	1,380,000	148,000	464,000	49,000	4,132,000
California	6,694,000	914,000	11,847,000	214,000	.....
United States total	33,907,000	4,968,000	37,293,000	2,993,000	54,685,000
Daily average, 12/28	1,093,800	160,300	1,203,000	96,500	1,764,000
Daily average, 11/28	1,105,700	163,600	1,192,400	91,600	1,888,800
Texas Gulf Coast	5,270,000	891,000	4,651,000	774,000	6,085,000
Louisiana Gulf Coast	1,911,000	441,000	2,046,000	52,000	7,028,000

OUTPUT (continued)—	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished products (bbls.)	Losses (bbls.)
East Coast	11,600	65,100	55,000	116,000	481,000
Appalachian	4,600	.....	36,000	107,000	141,000
Indiana, Illinois, etc.	33,800	34,400	196,000	93,000	85,000
Oklahoma, Kansas, etc.	30,900	1,300	48,000	219,000	365,000
Texas	29,200	15,700	10,000	907,000	647,000
Louisiana and Arkansas	12,000	14,900	160,000	478,000	141,000
Rocky Mountain	9,900	.....	10,000	638,000	54,000
California	.....	38,400	162,000	*609,000	357,000
United States total	132,000	169,800	677,000	3,166,000	2,275,000
Daily average, 12/28	4,260	5,480	21,800	102,100	73,400
Daily average, 11/28	4,370	8,150	24,100	94,600	79,600
Texas Gulf Coast	23,800	15,700	3,000	571,000	509,000
Louisiana Gulf Coast	11,900	14,000	153,000	326,000	45,000

Note—Wax, coke and asphalt equivalent to 277.6 pounds per barrel and 5.17 and 5.54 bbls. per ton, respectively.
*Includes 333,000 bbls. net tops produced. †Includes 129,000 bbls. run through pipe lines.

STOCKS HELD BY THE REFINING COMPANIES IN THE UNITED STATES, DECEMBER 31, 1928

	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)
East Coast	5,537,000	1,288,000	5,360,000	2,773,000
Appalachian	1,229,000	312,000	1,190,000	1,220,000
Indiana, Illinois, etc.	5,099,000	1,286,000	2,771,000	805,000
Oklahoma, Kansas, etc.	3,691,000	729,000	6,385,000	480,000
Texas	4,863,000	1,565,000	11,952,000	1,899,000
Louisiana and Arkansas	2,158,000	946,000	6,070,000	103,000
Rocky Mountain	1,568,000	366,000	1,198,000	181,000
California	8,921,000	2,509,000	.....	879,000
United States total	33,066,000	9,001,000	*34,926,000	8,340,000
United States total, 11/30/28	29,185,000	8,886,000	*37,878,000	7,921,000
Texas Gulf Coast	4,063,000	1,472,000	9,242,000	1,817,000
Louisiana Gulf Coast	1,979,000	927,000	5,033,000	101,000

	Wax (lbs.)	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished oils (bbls.)
East Coast	39,588,000	27,800	92,200	49,000	7,946,000
Appalachian	13,056,000	2,300	400	56,000	1,437,000
Indiana, Illinois, etc.	17,412,000	53,700	46,100	93,000	3,823,000
Oklahoma, Kansas, etc.	5,472,000	80,400	1,500	97,000	2,387,000
Texas	5,623,000	137,000	10,700	21,000	11,370,000
Louisiana and Arkansas	12,651,000	60,600	31,500	98,000	2,188,000
Rocky Mountain	16,542,000	75,100	8,100	54,000	1,293,000
California	.....	.....	45,000	167,000	†8,157,000
United States total	110,344,000	436,900	235,500	635,000	38,601,000
United States total, 11/30/28	103,949,000	418,800	228,000	726,000	38,114,000
Texas Gulf Coast	5,464,000	116,100	10,500	9,000	9,744,000
Louisiana Gulf Coast	12,651,000	60,300	31,100	93,000	1,828,000

*East of California. †Includes 1,065,000 bbls. tops in storage.

NUMBER OF PRODUCING WELLS COMPLETED*

December, 1928	1,059	January-December, 1928	12,540
November, 1928†	1,195	January-December, 1927‡	14,442

*For states east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute. †Revised. ‡Final figures.

SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (Barrels)

	Dec., 1928	Nov., 1928	Jan.-Dec., 1928	Jan.-Dec., 1927*
Crude oil	.....	147,000	2,300,000	10,692,000
Refined products	2,144,000	1,648,000	20,757,000	23,328,000
Gasoline	1,887,000	1,288,000	16,779,000	11,675,000
Tops	.....	.....	263,000	.....
Gas oil	250,000	283,000	2,504,000	4,197,000
Fuel oil	3,000	2,000	848,000	7,010,000
Lubricants	2,000	73,000	335,000	355,000
Asphalt	2,000	2,000	28,000	17,000
Kerosene	.....	.....	.....	74,000

*Final figures.

COMPARATIVE ANALYSES (Thousands of barrels of 42 U. S. gallons)

	Runs to stills: Total	Runs to stills: Dy.av.	Imports*: Total	Imports*: Dy.av.	Exports*: Total	Exports*: Dy.av.	Stocks end of period	Domestic demand: Total	Domestic demand: Dy.av.
CRUDE PETROLEUM:									
December, 1928	79,520	2,565	6,807	220	1,529	49	†385,426	.....	.....
November, 1928	77,149	2,571	6,908	230	1,691	56	†384,143	.....	.....
Jan.-Dec., 1928	912,831	2,494	79,583	217	18,973	52	†385,426	.....	.....
December, 1927	71,271	2,299	6,210	200	1,717	55	†372,124	.....	.....
Jan.-Dec., 1927	828,835	2,271	58,383	160	15,843	43	†372,124	.....	.....
	Production: Total	Production: Dy.av.							
GASOLINE:									
December, 1928	33,907	1,094	420	14	3,802	123	33,066	26,644	859
November, 1928	33,171	1,106	304	10	4,678	156	29,185	26,052	868
Jan.-Dec., 1928	377,183	1,031	4,296	12	53,797	147	33,066	327,932	896
December, 1927	28,619	923	282	9	3,154	102	33,316	23,548	760
Jan.-Dec., 1927	330,435	905	5,002	14	44,337	121	33,316	296,807	813
KEROSENE:									
December, 1928	4,968	160	20	1	1,241	40	9,001	3,632	117
November, 1928	4,908	164	.....	....	2,091	70	8,886	2,546	85
Jan.-Dec., 1928	60,156	164	204	1	22,066	60	9,001	37,008	101
December, 1927	4,869	157	15	....	1,254	40	7,715	3,852	124
Jan.-Dec., 1927	56,113	154	55	....	19,537	54	7,715	37,491	103
GAS OIL AND FUEL OIL:									
December, 1928	37,293	1,203	646	21	3,254	105	‡134,901	.....	.....
November, 1928	35,771	1,192	411	14	3,320	111	‡136,407	.....	.....
Jan.-Dec., 1928	425,455	1,163	7,268	20	44,462	121	‡134,901	.....	.....
December, 1927	33,864	1,092	451	15	3,828	123	‡127,741	.....	.....
Jan.-Dec., 1927	393,066	1,077	8,124	22	47,391	130	‡127,741	.....	.....
LUBRICANTS:									
December, 1928	2,993	97	3	....	878	28	8,340	1,699	55
November, 1928	2,748	92	1	....	895	30	7,921	1,763	59
Jan.-Dec., 1928	56,665	1,889	2,994	100	25,170	839	‡03,949	23,354	778
December, 1927	2,801	90	1	....	784	25	7,860	1,682	54
Jan.-Dec., 1927	31,721	87	8	....	9,776	27	7,860	21,669	59
WAX (thousands of pounds):									
December, 1928	54,685	1,764	2,138	69	26,602	858	110,344	23,825	769
November, 1928	56,665	1,889	2,994	100	25,170	839	‡03,949	23,354	778
Jan.-Dec., 1928	630,144	1,722	24,748	68	391,623	1,070	110,344	303,563	829
December, 1927	54,039	1,743	1,906	61	30,669	989	§167,214	29,762	960
Jan.-Dec., 1927	584,347	1,601	20,462	56	340,423	933	§167,214	282,503	774

*From Bureau of Foreign and Domestic Commerce, subject to revision. Exports include shipments to Alaska, Hawaii and Porto Rico. †Includes California light crude. ‡Includes California heavy crude and fuel oil. §New basis to compare with 1928—150,638,000.

GASOLINE PRODUCTION BY THE VARIOUS METHODS—DECEMBER, 1928 (Barrels)

	Straight run	%	Cracked	%	Natural gasoline	%	Total
East Coast	2,413,000	51	1,954,000	42	317,000	7	4,684,000
Appalachian	904,000	64	419,000	30	84,000	6	1,407,000
Indiana, Illinois, etc.	2,710,000	53	2,172,000	43	225,000	4	5,107,000
Oklahoma, Kansas, etc.	3,239,000	63	1,609,000	31	334,000	6	5,182,000
Texas	3,715,000	54	2,504,000	36	702,000	10	6,921,000
Louisiana and Arkansas	1,240,000	49	808,000	32	484,000	19	2,532,000
Rocky Mountain	711,000	51	562,000	41	107,000	8	1,380,000
California	4,621,000	69	929,000	14	*1,144,000	17	6,694,000
Total	19,553,000	58	10,957,000	32	3,397,000	10	33,907,000
Total November, 1928	18,631,000	56	11,378,000	34	3,162,000	10	33,171,000
Total Jan.-Dec., 1928	219,437,000	58	122,381,000	33	35,365,000	9	377,183,000
Gulf Coasts	3,383,000	47	2,838,000	40	960,000	13	7,181,000

*Includes 129,000 bbls. natural gasoline run through pipe lines.

The indicated output of motor fuel from the above and other sources may be expressed by the following table (in thousands of gallons):

	December, 1928	November, 1928	Jan.-Dec., 1928	December, 1927
Gasoline produced at refineries * †	1,424,100	1,395,200	15,841,700	1,197,500
Natural gasoline blended at plants east of California	2,300	2,400	28,900	2,800
Natural gasoline sold direct to jobbers	2,100	2,100	25,200	800
Benzol production‡	10,600	10,100	118,000	8,900
Total motor fuel produced	1,439,100	1,409,800	16,013,800	1,210,000
Daily average	46,420	46,990	43,750	39,030
*Includes natural gasoline blended at refineries	137,300	130,800	1,405,400	118,400
†Includes natural gasoline run through refinery pipe lines in California	5,400	4,900	79,900	9,100

VERA CRUZ IMPOSES TAX ON OIL ROYALTIES

NEW YORK, Feb. 4.—With American oil companies operating in Mexico being forced to curtail operations, because of inability to compete with low priced Venezuelan and West Texas crude, and expecting some relief in the matter of production and export taxes from the Mexican Government, a new factor has entered the situation in the shape of a new tax by the State of Vera Cruz.

The government of that State has enacted legislation imposing a tax of 15 per cent on all royalties paid by oil companies. This tax applies also on deals transferring rights, options, or contracts entered into prior to the date on which the law became effective, January 17, last.

It is reported that local business interests in Vera Cruz are protesting the tax, which would still further cripple the petroleum industry in that State. In case of attempt to enforce the legislation the matter will probably be carried to the Mexican Supreme Court. According to some reports it is not believed the tax law can be enforced. Under the Mexican Constitution only the Federal Government is empowered to impose taxes on the petroleum industry, with the single exception of taxation on retail sales of gasoline.

Some years ago, the State of Vera Cruz attempted to collect a tax of 30 per cent on the petroleum industry but the attempt was abandoned after the Federal Government had counseled against the action.

THE CORONADO EXPEDITION

The Texas State Historical Association has published a reprint of the article by David Donoghue of the Texas Pacific Coal & Oil Co. which appeared originally in the Southwestern Historical Quarterly. Mr. Donoghue's researches have convinced him that the route of the explorers was much more circumscribed than usually supposed. It is an interesting contribution to the history of Texas.

RATE INVESTIGATION HEARINGS ARE HELD

Testimony in the general rate investigation described as Interstate Commerce Commission Docket 17,000, Part 4A, involving the interstate and the intrastate rates between points in Kansas, Oklahoma, Arkansas, Texas, Louisiana and southern Missouri, is being given in Tulsa this week, a hearing having just ended at Dallas, Tex. Next week additional testimony will be given at Kansas City, Mo.

Practically all of the larger refiners have filed complaints in the case and a general complaint is raised against the 39½-cent blanket tariff established on all single line hauls in Texas of 120 miles or more or combination hauls of 90 miles or more. With this rate it costs 2.61 cents per gallon to ship gasoline 120 miles in Texas which the refiners claim is unreasonable. The corresponding rate from Oklahoma is 28½ cents or 1.88 cents per gallon and while this is being used as a basis of comparison it is entirely possible that some increase will be effected in the Oklahoma rates if the commission finally decides the Oklahoma and Texas rates are not comparable. The testimony is being heard by Examiner Fuller and he is being assisted by Examiner Peyser.

NEW PLAN TO CURTAIL OKLAHOMA PRODUCTION

(Continued from Page 29)

west side of Township 8-6 and probably extends over into the east side of Township 8-5. There are numerous wells drilling in this region which may find the Wilcox sand barren of oil, but the possibility that good production will be found along the west side of the region where operations are now drilling has influenced the thought that some constructive measures must be taken if the output of this pool is to be checked.

Under the plan put into effect last fall, there were 77 wells allowed to start drilling in the Mission area. Many of these are now on top of the sand, and the drilling of a second group of wells which were to have been started February 1, has been postponed. It is now believed that if the wells in Mission which are on top of the sand were opened fully, there would be a production close to 50,000 bbls. daily in this spot. The Mission region therefore is considered exceptionally important. Under the terms of the present agreement, the wells were to have been drilled into the sand on February 15. The meeting of the Mission operators, like the meeting of all the Seminole producers, was also characterized by a discussion of the future of the pool.

At the close of the meeting the following resolution was adopted by a majority of the operators interested: "The Mission operators agree to produce a maximum of 200 bbls. daily from wells which were permitted to be drilled in February 15. This program to end March 15. It is further agreed that no additional wells shall be started prior to March 15, 1929, in this pool."

Those voting for the resolution were Amerada Petroleum Corp., Prairie Oil & Gas Co., Gypsy Oil Co., Shell Petroleum Corp., C. L. McMahon, Pure Oil Co., Shaffer Oil & Refining Co., Independent Oil & Gas Co., Minnehoma Oil Co., and T. B. Slick. The Papoose Oil Co. and Darby Petroleum Co. passed their votes. The following companies having interests in the pool were absent: Twin State Oil Co., Carter Oil Co., Marland Oil Co., W. B. Pine, Sinclair Oil & Gas Co., Mid-Kansas Oil & Gas Co., Tidal Oil Co. and W. L. Kistler.

It was stated late Tuesday that Mr. Kistler opposed this plan in the Mission area, and that he felt that holding the wells to 200 bbls. daily would prove injurious to the properties.

While no definite decision has been made regarding new locations in the second group of wells under consideration in the Mission area, it seems probable that about 60 or 75 wells will constitute the activity.

PROSPECTIVE NEW FIELD OPENED IN MASON COUNTY, MICHIGAN

By Special Correspondent

MUSKEGON, Mich., Feb. 4.—A prospective new Michigan oil field has been opened in Logan Township, Mason County, about 50 miles north of the Muskegon Field, according to reports received here today.

Oil was struck at about 1,900 feet in what is believed to be the Upper Traverse formation in Taggart Brothers and Welch's No. 1 L. N. Lake, NW SE Section 10-17-15, Logan Township, Mason County. The well pumped 90 bbls. of oil in six hours and has been shut down to set field tankage. The new producer is about 1½ miles east of two gassers brought in several months ago in the Upper Niagara lime at about 3,300 feet. They have a rock pressure of about 1,450 pounds and an open-flow capacity of about 750,000 feet a day.

The first successful well was the No. 1 Young Brothers, SE SW Section 9-17-15, Logan Township, Mason County. The second gasser was the No. 1 Fred Campbell, NW NW Section 16-17-15, Logan Township, Mason County. The same operators are now drilling their No. 2 Young Brothers, SW SE Section 9-17-15, at about 3,200 feet. It will be rushed to completion in the Niagara pay sands expected within another 100 feet of drilling.

Oil from the new well is reported to be 42 gravity and free from sulphur.

Construction of a gas pipe line from the two gas wells to Scottville, Custer and Ludington, a distance of about 20 miles in all, will be started as soon as weather permits. Operation in the new Mason County area has been greatly retarded by heavy snow and cold weather.

Legislation Proposed

Five new bills covering all phases of Michigan's newly developed oil and gas industry have been introduced in the state senate at Lansing and a delegation from the newly organized Michigan Oil and Gas Association called upon Gov. Fred W. Green to discuss the proposed new laws and offer co-operation.

The first bill introduced was that of Senator Orville E. Atwood to regulate the drilling and operation of oil and gas wells, prohibiting drilling less than 200 feet from any property line, providing for strict inspection and approval by representatives of the state conservation department and naming the director of conservation supervisor of wells.

A tax bill introduced by State Senator Chester M. Howell would provide for a 3 per cent tax on gross production of oil and gas in lieu of all other taxes. Operators favor a 1 per cent tax.

Senator James A. Skinner introduced a bill to place all persons or corporations producing and transmitting, or purchasing and transmitting natural gas under the jurisdiction of the state Public Utilities Commission. The Skinner bill also provides for use of the gas from any field on a pro rata basis.

Senator Gordon F. Van Eenenaam introduced a bill to provide for regulation by the utilities commission of the issuance of stock, bonds or other securities by those conducting business as public utilities. Both this and the Skinner bill would provide for filing reports and schedules of rates both for purchase and sale of gas with the utilities commission.

Senator George S. Barnard introduced a bill to give oil and gas companies the right to condemn property by eminent domain with supervision by the utilities commission.

Complete co-operation with the state administration for conservation of the oil and gas resources of Michigan was voiced by the representatives of the Michigan Oil & Gas Association, who called upon Governor Green. They were: President E. J. Bouwsma of Muskegon; chairman of the legislative committee, John Bruun of Grayling; William H. Wilson of the Reed Oil Co., Muskegon; F. O. Prior, vice-president and general superintendent of the Dixie Oil Co. of Shreveport, La.; and Frank L. Maire, president of the Lima Oil Corp.

Three requests were made to the governor by the association representatives: First, that a practical man of at least 10 years' experience in the oil business be named inspector of wells; second, that a tax based on the gross return of production be levied in lieu of all other taxes; and, third, that the output of gas be prorated among all of the wells on a basis of potential flow and acreage.

The first request was granted by the appointment of O. H. White of El Dorado, Ark., as the new inspector of wells. He has had long experience in the industry, having started in Illinois and Indiana 18 years ago. He has spent the last eight years in Texas and Oklahoma. Mr. White succeeds R. B. Newcombe, assistant state geologist, who has been stationed in Muskegon for two months until a permanent resident inspector could be obtained.

It is expected that the second and third requests of the operators will be granted in the probable passage of two of the five proposed new laws. The administration forces are said to be backing all of the bills introduced.

Taxation Discussed

Proposed taxation of the Muskegon oil field and other oil-producing property in Michigan, on the basis of an appraisal to be made by a Pittsburgh engineering company, was discussed in a conference before the Michigan State Tax Commission at Lansing.

R. F. Bechtel, field superintendent of the Dixie Oil Co., subsidiary of the Standard Oil Co. of Indiana, and representatives of the Pure Oil Co., the Sun Oil Co. and other large operators in Michigan were present.

CODE TO BE CHIEF TOPIC AT A.O.M.A. MEETING

The chief topic to be discussed by the members of the American Oil Mens Association at their spring convention and annual meeting which is to be held at the Congress Hotel, Chicago, February 12, 13 and 14, will be the "Code of Trade Practices." W. R. Boyd, Jr., of the American Petroleum Institute will be present and inform the members of the latest developments. Mr. Boyd will come to this convention right from the hearing on the code, to be held in St. Louis by the Federal Trade Commission. The present day problems of the industry will be discussed in open forum sessions with the hope that a frank discussion will help to their successful solution.

W. J. Gerwe of the Vacuum Oil Co. will talk on the subject of "How to Make the Sale of the Station." His talks are always practical and of great interest.

The Dixie Distributors, already operating in Michigan and Wisconsin with much success and a preliminary organization in Illinois, will occupy part of the time of the convention with a general meeting which will be of great interest to all distributors. Dixie dealers are preparing to organize in Ohio, Indiana and Iowa along the lines that have been successful in the states where the plan is in operation. At the last convention of the organization, Dixie Day was one of the most attractive features and it is believed their meeting will bring many jobbers to the city, including members and those who want first-hand information of the methods used.

The annual meeting for the election of directors and officers for the ensuing year will take place on the second day, February 13, at 10 o'clock a.m. There will be a comprehensive exhibit of equipment and materials as the space allotted to the displays has been sold out.

REFINERY RUNS SHOW SMALL DECREASE

(Continued from Page 33)

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Feb. 1	Runs Jan. 1
American Refining Properties, Wichita Falls	6,000	3,000	3,700
Continental Oil Co., Wichita Falls	6,000	4,200	4,000
Dale Oil & Refining Co., Electra	2,500	3,400	2,800
Empire Oil & Refining Co., Gainesville	5,000	3,600	3,600
Falls Refining Co., Wichita Falls	1,500	1,000	1,000
Gulf Refining Co., Fort Worth	10,000	6,150	7,500
Humble Oil & Refining Co., Breckenridge	2,000	1,000	(*)
Humble Oil & Refining Co., Chilton	2,000	1,000	(*)
Superior Refining Co., Tiffin	2,000	300	300
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,200	1,200
Central Texas Refining Co., Angus	4,000	2,000	1,500
Central Texas Refining Co., Minerva	2,000	800	700
Macmillan Petroleum Co., Isom	6,500	6,000	5,500
Magnolia Petroleum Co., Fort Worth	12,000	8,500	7,500
Magnolia Petroleum Co., Corsicana	5,000	3,400	3,400
Noble Oil & Gas Co., Burkburnett	3,500	2,500	2,500
Olney Oil & Refining Co., Olney	2,000	1,500	1,800
Oriental Oil Co. (Trinity), Dallas†	5,000	3,300	3,500
Orient Petroleum Co., Wichita Falls	2,500	1,500	1,000
Panhandle Refining Co., Wichita Falls	5,000	3,300	3,300
Pampa Refining Co., Pampa	4,000	2,500	2,500
Phillips Petroleum Co., Isom	7,500	7,500	7,500
Primrose Refining Co., Wichita Falls	2,500	1,200	1,800
Primtex Refining Co., Grand Prairie	2,500	1,000	900
Simms Oil Co., Dallas	5,000	4,000	5,500
Star Refining & Producing Co., Fort Worth	1,800	1,200	1,200
Swastika Refining Co., Muenster	1,000	(*)	(*)
Taxman Refining Co., Wichita Falls	2,500	1,800	2,000
The Texas Company, Dallas	15,000	12,000	12,500
The Texas Company, Amarillo	6,000	2,000	2,000
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Fort Worth	3,000	2,000	2,000
Transcontinental Oil Co., Fort Worth	5,000	3,300	4,000
Waggoner Refining Co., Electra	3,400	2,000	1,900
White Eagle Oil & Refining Co., Fort Worth	6,000	(*)	(*)
Total	159,700	100,150	101,600

*Shut down. †Operated by Magnolia Petroleum Co.

REFINERY OPERATIONS IN NORTH LOUISIANA
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Feb. 1	Runs Jan. 1
Bayou State Refining Co., Houston	700	600	300
Crystal Oil Refining Corp., Shreveport	14,000	7,800	7,500
Dixie Oil Co., Superior	3,000	2,500	2,500
Louisiana Oil Refining Corp., Shreveport, Bossier	24,000	18,000	18,000
Shreveport Producing & Refining Co., Shreveport	8,000	8,300	8,300
The Texas Company	6,000	6,000	6,000
Total	55,700	43,200	42,600

REFINERY OPERATIONS IN ARKANSAS
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Feb. 1	Runs Jan. 1
Henry H. Cross Co., Smackover	5,500	5,600	5,100
Houston Oil Co., Camden	2,000	2,000	2,200
Kettle Creek Refining Co., Pearson	5,000	3,300	4,000
Lion Oil & Refining Co., El Dorado	12,000	7,000	7,000
Macmillan Petroleum Products Co., El Dorado	1,800	1,550	1,600
Ouachita Valley Refining Co., El Dorado	2,000	1,000	1,000
Root Refineries, El Dorado	5,500	5,500	5,500
Simms Oil Co., Smackover	3,000	2,500	2,300
Total	38,800	28,450	28,700

Late Fields

(Continued from Page 38)

Texas Production Co.'s No. 1 Rhoades, SE NE NW Section 22-36-37, the discovery well in that area which was completed in 1927 at 3,216 feet for 22,000,000 feet of gas and 120 bbls. of oil and shut in. Search for the trend of the high out of Winkler County into southeastern New Mexico has been in progress for the past two years.

The Marland Production Co.'s No. 1 Lynn, Section 16-23s-36e, was making 50,000,000 feet of gas and showing about 5 bbls. of sulphur water at a total depth of 3,930 feet. It is believed the sulphur water is coming from a stratum between 3,850 and 3,900 feet. The sulphur water will be plugged off. The gas is coming from above the sulphur water.

The Empire Gas & Fuel Co.'s No. 1 State "C" lease, in Section 12-21s-34e, has encountered sulphur water. The fluid in this well came from 3,878-81 feet, total depth 3,902 feet. The hole is standing 1,200 feet in water and efforts to bail it down have been unsuccessful

Texas Production Co.'s No. 1 Shepherd, in Section 6-26s-37e, to the southeast of the Skelly Oil Co.'s No. 1 Joyner producer, which remains pinched in for pipe line connections, gauged 157 bbls. of oil on February 3. Due to the fact that the crew has hold on the tools which were lost in the hole it is expected to complete its fishing job at once. This company's No. 1 Moberly, in Section 17-26s-37e, according to reports, has the drill stem stuck 400 feet off the bottom of the hole and having a total depth of 3,541 feet, while its No. 1 Lynch continues to ream and clean out.

WEST TEXAS

FORT WORTH, Tex., Feb. 5.—In the Leck area of northern Winkler County, Warner Quinlan's No. 1 Dougherty, Section 3, Block 74, is estimated to be flowing 70,000,000 feet of gas and 400 bbls. daily from a total depth of 3,105 feet. Prairie company's No. 1 Daugherty, Section 15, Block 74, is flowing 23 bbls. per hour from 3,130-40 feet.

In the southern tip of Hendricks Pool, Southern Crude Co.'s No. 1 T-88-J, NE cor. Section 9, Block B-12, is flowing 100 bbls. hourly and drilling at 2,908 feet after topping pay at 2,870 feet.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Feb. 5.—Foster Barnsley's No. 1 Webster, southeast edge, Carolina-Texas Pool, Webb County, is 50-bbl. pumper and extends pool.

GULF COAST

HOUSTON, Tex., Feb. 5.—Pure Oil Co. added another producer at its Sweet Lake prospect in Cameron Parish when it brought in its No. 7 Yount Lee Oil Co. flowing an estimated 600 bbls. daily. The well is the shallowest yet completed at Sweet Lake being from a sand at 4,595 feet. The previous shallowest production has been approximately 1,200 feet lower. The oil tests 29.3 gravity. Gulf Production Co.'s No. 13 Paddoc-Smith, Goose Creek, has been completed flowing 300 bbls. daily at 3,644 feet.

EAST CENTRAL TEXAS

CORSICANA, Tex., Feb. 4.—Daily average production in East Central Texas the past week was 21,529 bbls., an increase of 142 bbls.

Bogey Creek	2,569
Cedar Creek	230
Currie	500
Mexia	6,005
Minerva	725
Nigger Creek	395
Powell	9,206
Richland	436
Thrall	33
Wortham	1,430
Total this week	21,529
Total last week	21,676
Decrease	147

VENEZUELA MADE NEW HIGH RECORD FOR PRODUCTION DURING DECEMBER

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 2.—Venezuelan oil production in December, 1928, totaled 12,269,931 bbls., an average of 395,804 bbls. daily. This was a new high record, comparing with the former record of 11,291,370 bbls., or 376,379 bbls. daily, in November. Production during December, 1927, amounted to 7,304,597 bbls., or 235,632 bbls. per day.

Lago Oil & Transport Co. was the largest individual producer in December, with 3,745,430 bbls., an average of 120,820 bbls. per day.

Production in Venezuela for the entire year 1928 aggregated 108,098,108 bbls., as compared with 64,437,926 bbls. in 1927. Shipments during the year just ended were 100,616,400 bbls., as compared with 54,593,304 bbls. in 1927.

Venezuelan production and shipments for December, according to O'Shaughnessy's South American Oil Report, was as follows:

(Barrels of 42 U. S. gallons)

	Production		Shipments	
	1928	1927	1928	1927
Lagunillas	7,186,872	3,538,334	6,096,568	3,058,740
La Rosa*	3,256,417	1,899,392	2,690,345	1,879,994
Mene Grande	1,620,246	1,482,411	1,107,000	1,415,580
El Mene	159,350	208,000	107,200	186,432
Benitez	11,046	124,460	..	.....
Guanoco	36,000	52,000	36,000	52,000

*Production and shipments from the Ambrosio Field included in the La Rosa figures.

Production and shipments by companies in Venezuela during December were as follows:

(Barrels of 42 U. S. gallons)

	Production		Shipments	
	1928	1927	1928	1927
Ven. Oil Concessions	3,679,905	1,786,819	2,916,209	1,719,987
Lago Petroleum	3,745,430	2,102,007	2,746,579	1,805,747
Falcon Oil Corp.	120,125	...	120,125	.....
Gulf-Creole*	1,272,514	799,398	1,309,880	706,500
Gulf	530,531	304,962	535,860	254,340
Gulf Venezuela Petroleum	1,105,830	569,000	1,131,260	452,160
Caribbean Petroleum	1,620,246	1,482,411	1,107,000	1,415,580
B. C. O., Ltd.	159,350	208,000	107,200	186,432
General Asphalt	36,000	52,000	36,000	52,000

*Creole share 616,559 bbls.

According to South American Oil Reports, there were only two completions of more than routine interest during December in Venezuela. The Colon Oil Corp. completed its first well for some months, T-31 at Tarra, at 2,240 feet, good for 1,500 bbls. Standard (California) Beacon-Sun, after a great deal of difficulty, finally completed its No. 1-A El Mammon in the Urumaco Field at 3,437 feet, good for 2,100 bbls. of 35 gravity oil (14 per cent water) through one five-eighths-inch choke, under 250 pounds pressure.

At Lagunillas, Lago was running 15 strings, Gulf 12, Venezuelan Oil Concessions 12.

At Ambrosio, Venezuelan Oil Concessions was running 10 strings, Gulf 7, Lago none.

At La Rosa, Lago was running 6 strings, Venezuelan Oil Concessions 4, Gulf none.

At Mene Grande, Caribbean Petroleum was running 2 strings.

In the El Mene Field, British Controlled Oilfields, Ltd., was running 9 strings.

At Rio Palmar, Creole Petroleum Corp. was running 4 strings.

In the Colon Field, the Colon Oil Corp. was running 6 strings.

Lago's Storage

Lago Oil & Transport Co. reports that as of December 20, 1928, it had in storage in Venezuelan fields 3,878,186 bbls. of crude. Of this total, 1,917,863 bbls. was in southern fields and the remainder in northern fields. The company has contracted for 50 additional 80,000-bbl. steel storage tanks. Upon completion of these contracts, it will have a total field and terminal storage in excess of 11,000,000 bbls.

The Lago Oil & Transport Co. has started construction work on its terminal on the lake shore at Vuelta del Pino in the Bella Vista section of Maracaibo, Venezuela. The plant will comprise a two-story office building, 270 by 36 feet, a swimming pool, club house, mess hall, tennis courts, two 16-room two-story bachelor houses, and 17 one-family houses.

Royal Dutch-Shell interests in Venezuela will add three tankers to its fleet operating on Lake Maracaibo during 1929, bringing the total number of vessels in service to 36. Lago Oil & Transport Co., which now has 19 tankers in the lake service, will also add three vessels to its fleet this year.

Lago Oil & Transport Co. produced 767,693 bbls. of crude in the week ended January 25, an average of 109,670 bbls. daily. This compared with 780,223 bbls., or 114,460 bbls. daily, in the previous week and record output of 913,868 bbls., or 130,553 bbls. daily, in the week ended November 29, 1928. Shipments for the week ended January 25 were 576,234 bbls., an average of 82,319 bbls. a day, against 563,511 bbls., or 80,502 bbls. daily, in the previous week.

FUEL MARKET STRONGER IN OKLAHOMA AREA

(Continued from Page 28)

For the first time in several months the government figures show a substantial increase in gasoline stocks when the current figures are compared with the data for the same date of the previous year. Mid-Continent gasoline stocks on the last day of 1928 totaled 4,670,000 bbls., an increase of almost 25 per cent over the same date in 1927. Over the greater part of 1928 gasoline stocks were less than on the corresponding date in 1927 but a continued high production rate during December changed this situation.

The increase in stocks was obviously brought about by a large increase in crude oil runs to stills with a corresponding increase in gasoline output. Based on information given in the tab'e crude oil runs to stills in the Mid-Continent in December, 1928, were 92,000 bbls. daily greater than in December, 1927.

In the gasoline end the Mid-Continent output increased 1,171,000 bbls. in December, 1928, over December, 1927. This increase of 21.4 per cent in crude oil runs to stills and 18.6 per cent in gasoline output, an operating situation which obtains up to the present time, obviously means that refiners will have to continue to store their gasoline. The gasoline demand is showing a steady increase but it is not sufficient to keep pace with the increased supply. It is apparent that the efforts being made to curtail plant operations over the next 60 days should receive the support of all refiners for otherwise burdensome inventories are certain to accumulate before the summer gasoline demand absorbs.

Gasolines and Naphtha

The Oil and Gas Journal's weighted average prices based on reports from representative Oklahoma refiners on Monday, February 4, showed the following to the trade: U. S. Motor, 7.02 cents; 60-62, 437, 7.26 cents and 60-62, 400, 7.5 cents. No sales on 64-66, 375 were reported. This grade generally was being quoted to the trade at 8 to 8¼ cents.

As previously stated there was less price cutting at the new schedules than there was in December and January when a few refiners were accustomed to quote from one-half to 1 cent under the prices established by the larger refiners.

The demand for U. S. Motor gasoline improved the first few days of February but the higher gravity gasolines apparently on Monday and Tuesday were less active. Naphtha prices cover a wide range. The best grade of 50-52, 450 endpoint gasoline was moving at 6½ to 6¾ cents a gallon. Some of the lower gravities with higher points sold as low as 6 cents.

Kerosene

The kerosene market in Oklahoma is firm. The price range of 5 to 5¼ cents for the 41-43 water white grade established a week ago is still in effect but a greater volume is moving at the higher price. The higher gravities are scarce. One sale of a 44 grade was reported at 6¼ cents.

Fuel Oils

Fuel oils, gas oils and distillates can all be discussed under one head for the reason that the market trend for the week was the same. The better grades are all strong and additional advances are in prospect. Cold weather in the Middle West brought many inquiries for immediate shipments and no objections were made by the buyers when higher prices were asked.

Contract business in furnace oil distillates has increased to the point where a few refiners have been buying from other refiners in order to supply their regular trade. The furnace oil demand indicates that a large number of oil burner installations were made during the past year. Apparently there is little uniformity as the material being sold by the jobbers who are buying everything from 26 gravity fuel oil to 40 gravity prime white kerosene for use as furnace oils. Some of the jobbers are doing their own blending in order to secure a product of the desired cold test and flash.

Fuel oils and gas oils of high cold test continue to move slowly. The quantity offered is not large for the reason that the refiners in most cases are using their output as charging stock or storing in anticipation of a better market when the winter season is over.

Natural Gasolines

Grade AA was available on Tuesday at 6½ cents a gallon. Grade A was off a half from the high of last week to 7¼ cents. The Grade BB sold at 5 cents and Grade C was weak at 4¾ cents. Deliveries were still being made on last month's sales but sufficient material was available on the spot market to require substantial buying if the market is to be maintained.

Lubricating Oils and Wax

Mid-Continent manufacturers of bright stocks and steam refined stocks are in excellent shape for February. Several have no steam refined stock to offer for February delivery. The prices in the Mid-Continent on bright stocks were not advanced as much in the Mid-Continent during the strong market of January as they were in the eastern areas and as a result the demand continues steady.

Very little wax is being sold in Oklahoma. Export buyers are making inquiries and offering around 4¼ to 4½ cents a pound for 124-126 material. So far as known refiners are refusing to accept these offers. Several have large quantities to move on sales made in January at a price of 5 cents or better. Prices in the eastern markets have slumped but Mid-Continent manufacturers are confident that prices will improve within the next 60 days.

OIL-BURNING LOCOMOTIVES

CHATHAM, Ontario, Feb. 2.—It is announced that the Canadian Pacific Railway has ordered from the Montreal Locomotive Works 20 of the largest size of oil-burning locomotives, to handle the freight and passenger traffic on the Rocky Mountain lines in western Canada.

OIL SECURITIES HAD BUT NARROW RANGE

(Continued from Page 129)

also had a line which had not been in use for several years and which was nearly parallel to the Southern for a distance of over 100 miles at the western end, and quite near our line at the Matthews Farms. A small amount of traffic was offered to the Pure Oil Pipe Line Co. terminal on the Delaware River.

"For economy of operation of both lines it was decided that the Southern should sell to Pure Oil Pipe Line Co. the line between Millway and Matthews Farms. This sale was approved by the Public Service Commission and a small amount of oil is now moving to Millway through the Pure Oil Pipe Line to its terminal.

"Southern Pipe Line Co. is still in position to deliver oil to Philadelphia by way of the line which it sold, and the line near Philadelphia which it retains. There is little chance that this line will be used for transporting oil, and an effort is being made to find some other use for it. The operation cost to Southern will be only slightly increased to handle the additional oil referred to."

The company has declared a dividend of $1, payable March 1, in partial liquidation of the capital account, representing the sale of the 45 miles of line to Pure Oil Pipe Line Co. Additional returns from this account will be paid to stockholders as funds become available.

Atlantic Refining

Preliminary statement of Atlantic Refining Co. and subsidiary companies, for the year ended December 31, 1928, shows consolidated net profit of $16,849,000 after interest, depreciation, depletion, federal taxes, etc., equivalent after allowing for dividend requirements on 7 per cent preferred stock, to $7.72 a share (par $25) on 2,000,000 shares of common stock. This compares with net profit of $2,315,715 in 1927, or $1.83 a share on 500,000 common shares of $100 par value then outstanding.

Twenty Representative Stocks

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

January 26	57.44
February 2	57.55

FREDERICK H. SIVYER KILLED BY AUTOMOBILE

Frederick H. Sivyer, aged 49, president of the Sivyer Steel Casting Co., Milwaukee, Wis., died January 22 of injuries suffered when he was struck by an automobile. Mr. Sivyer was president of the Northwestern Malleable Iron Co. from 1910 to 1928, when it was merged with the Rockford Malleable Co. under the name Rockford Northwestern Malleable Co. He was vice president of the consolidated concern. He organized the Sivyer Steel Casting Co. in 1910 and served as its president continuously until his death. Mr. Sivyer was president of the Malleable Iron Institute, Cleveland; a director of the First Wisconsin National Bank, Milwaukee, and a trustee of the Northwestern Mutual Life Insurance Co., Milwaukee.

ROBINSON SUSTAINED

AUSTIN, Tex., Feb. 2.—The District Court has sustained Texas Land Commissioner J. T. Robinson in his contention it was mandatory on his part to offer for sale leases on university land when requested to do so by prospective buyers and ordered dissolved the injunction restraining him from selling 53,000 acres advertised. Judge J. D. Moore in Travis County District Court held invalid that section of the law passed by the present legislature repealing the act of 1925 and in effect withdrawing the leases from the market. He ruled that bidders on the leases offered in the January 2 sale had vested rights which could not be abrogated by legislation which was probably retroactive. The repeal law was passed January 11.

INVENTOR OF ROTARY SLIPS PASSES AWAY

The passing, at Houston, Tex., on January 13, of C. R. Livergood, marks the loss of one who, in the field of invention, has contributed notably to the oil industry in way of improved and original

C. R. Livergood

devices. Mr. Livergood was particularly noted for his invention of the rotary slips on which he was awarded patent, and which are produced by the W-K-M Co., Inc., of Houston, with whom he was connected for a number of years prior to his demise. Several other patents had been assigned by him to other manufacturing and selling concerns, contributing largely to the very appreciable estate left by the inventor to his family.

During the war Mr. Livergood was actively engaged with the Government in shell research work.

Interment was at King City, Mo., former home of Mr. Livergood.

TEXAS PANHANDLE

(Continued from Page 39)

doned at 245 feet. His No. 10 Allen & Kemp was dry and abandoned at 221 feet. Coleman & Coppock's No. 20 Kemp & Kempner made 65 bbls. at 1,479-97 feet. Humble Oil & Refining Co.'s No. 10 Taylor made 200 bbls. at 1,473-87 feet. Its No. 11 Taylor made 200 bbls. at 1,473-88 feet. Its No. 1 Wigley was dry and abandoned at 1,880 feet. J. E. Keller's No. 3 Waggoner was shot with two 10-quart shots at 1,266-72 feet and made 1½ bbls. Producers Drilling Co.'s No. 1 Allen & Kemp made 41 bbls. at 1,633-45 feet. Staley & Wynne's No. 2 Kemp & Kempner made 185 bbls. at 1,462-87 feet. United Producers Co.'s No. 9 Hodges-A made 75 bbls. at 1,466-90 feet. Fred Whitmeyer's No. 1 Hooks was dry and abandoned at 861 feet.

Wilbarger County

American Refining Properties' No. 1 Waggoner was dry and abandoned at 2,434 feet. Fain & McGaha Oil Corp.'s No. 2 Waggoner-DD made 40 bbls. at 1,931-34 feet. Lewis Production Co.'s No. 3 Waggoner made 170 bbls. at 2,360-77 feet and was drilled to a total depth of 2,410 feet. Its No. 6 Waggoner made 300 bbls. at 2,393-2,417 feet. Phillips Petroleum Corp.'s No. 5 Waggoner-MM made 25 bbls. at 2,316-30 feet. Robertson and others' No. 2 Waggoner-F made 76 bbls. at 1,863-92 feet. Shaw Oil Co.'s No. 2 Waggoner-E made 100 bbls. at 2,373-96 feet. The Texas Company's No. 7 Waggoner-C made 45 bbls. at 2,323-32 feet and 2,431-34 feet. Waggoner Refining Co.'s No. 2 Waggoner-K made 96 bbls. at 2,330-38 feet and 2,392-2,402 feet and was drilled to a total depth of 2,406 feet.

Young County

Holbrook & Woods' No. 5 Watson was dry and abandoned at 722 feet. Pennell and others' No. 2 Drum had an oil show at 483-85 feet and was dry and abandoned at 572 feet. Williams' No. 1 Bagley made 5 bbls. oil and 10 bbls. of water at 614-23 feet and 626-30 feet. Wise & Jackson's No. 4 Calvin made 4 bbls. at 638-47 feet and was drilled to a total depth of 654 feet. Wooten & Reed's No. 1 Drum was dry and abandoned at 593 feet.

RANGER DISTRICT

Brown County

Buffington & Smith's No. 1 Moore was dry and abandoned at 1,500 feet. Daniels and others' No. 1 Curry location was abandoned. Root and others' No. 1 Robertson was dry and abandoned at 1,402 feet. Syndicate Oil Co.'s No. 4 Curry was shot with 20 quarts at 1,108-23 feet and made 25 bbls. Young Brothers, Alexander and Woodley Petroleum Co.'s No. 8 Armstrong was dry and abandoned at 1,435 feet. Their No. 20 Hickman made 50 bbls. at 1,247-57 feet. Britt & Kinndard's No. 1 Bull was dry and abandoned at 1,402 feet. Evans' No. 1 Norton was dry and abandoned at 1,001 feet. McClung's No. 1 Smith was drilled to a total depth of 1,668 feet, plugged back to 1,664 feet and made 30 bbls. at 1,525-1,665 feet. Paramount Oil Royalties, Inc.'s No. 2 Mayes made 8 bbls. at 556-61 feet and was drilled to a total depth of 648 feet.

Callahan County

Moutray Oil Co.'s No. 13 Hatchett made 25 bbls. at 342-62 feet. Neeb, Howard's No. 1 Henderson location was abandoned. Reiter-Foster Oil Corp.'s No. 18 Hatchett made 15 bbls. at 343-51 feet. The Texas Company's No. 18 Hatchett was dry and abandoned at 376 feet.

Coleman County

Donaldson & Miller's No. 1 Burson was temporarily abandoned at 1,520 feet. Foster Brothers' No. 1 Sharp made 1,750,000 feet of gas at 1,123-40 feet and was drilled to a total depth of 1,143 feet. Foster and Midsun's No. 1 Haas made 65 bbls. at 1,494-99 feet.

Eastland County

Dale Oil & Gas Co.'s No. 14 Fox was dry and abandoned at 1,655 feet. Jake Hammon, Jr.'s No. 14 Poteet was dry and abandoned at 1,560 feet. Harrell Oil Co.'s No. 1 Holcomb was dry and abandoned at 1,613 feet. Teatsworth and others' No. 1 Roenquest made 15 bbls. after having been shot with 30 quarts at 1,447-57 feet. Hickok Production & Development Co.'s No. 2 Amis made 100 bbls. after having been shot with 95 quarts at 3,311-78 feet.

Palo Pinto County

Gordon & Gholson's No. 2 McDonald was dry and abandoned at 4,870 feet. Shaw's No. 2 Gilbert was dry and abandoned at 3,975 feet.

Shackelford County

Cranfill & Reynolds' No. 1 Diller was dry and abandoned at 1,110 feet; estimated show of 1,000,000 feet of gas at 840-50 feet. Roeser & Pendleton's No. 87-A-60 Cook was dry and abandoned at 1,434 feet. Their No. 34-A-61 Cook made 50 bbls. at 1,202-17 feet. Their No. 6-A-83 Cook made 1,394-1,408 feet. Their No. 7-A-83 Cook made 15 bbls. at 1,354-56 feet. Tannehill and other's No. 11-58 Matthews made 3 bbls. at 990-1,002 feet.

Stephens County

Cranfill & Reynolds' No. 1 Morris was dry and abandoned at 2,152 feet. Striplin's No. 1 Rewin heirs made 100,000 feet of gas and 25 bbls. oil at 1,883-89 feet. Texas Pacific Coal & Oil Co.'s No. 3 Hand made 250 bbls. at 3,701-25 feet and was drilled to a total depth of 3,780 feet.

PANHANDLE COMPLETIONS

Carson County

Duncan & Reiger's No. 1 Hodges, 330 feet from the east line and 330 feet from the south line W half NW, Section 112, Block 7, I.&.G.N.R.R. Survey, was temporarily abandoned.

Gray County

McIlroy's No. 2 Bull swabbed 20 bbls. at 2,790-99 feet. Phillips Petroleum Corp.'s No. 1 Olsen, NW cor. S half, Section 64, Block B-2, encountered sulphur water at 3,617-25 feet and was dry and abandoned at 4,020 feet. Skelly Oil Co.'s No. 4 Saunders, 330 feet from the north line and 990 feet from the east line SW cor. Section 4, Block 1, A.C.H.&B. Survey, was drilled to a total depth of 2,817 feet, shot with 120 quarts at 2,750-2,811 feet and swabbed 25 bbls. The Texas Company's No. 8 Saunders, 895 feet north line and 2,000 feet east of SW cor. Section 3, R.&R. R.R. Survey, was shot with 110 quarts at 2,683-2,755 feet and made 130 bbls. The Texas Company's No. 9 Saunders, 330 feet south and 3,016 feet east of NW cor. Section 1, Eustis Survey, was drilled to a total depth of 2,682 feet and flowed 542 bbls. at 2,668-72 feet.

Hutchinson County

Phillips Petroleum Corp.'s No. 1 Johnson Brothers-Dugan made 40 bbls. at 2,873-78 feet. Its No. 1 Sanford-Garford was shot with 40 quarts at 2,925-34 feet and made 40 bbls. Its No. 2 Sanford Pool was shot with 100 quarts at 3,036-76 feet, drilled to a total depth of 3,130 feet, plugged back to 3,100 feet and made 25 bbls.

Moore County

Devonian Oil Co.'s No. 1 Sneed, Jr., was junked at 2,980 feet.

WEST TEXAS FIELDS

(Continued from Page 40)

west NE cor. S half NW, Section 28, Block C-18, was temporarily abandoned at 25 feet.

Reagan County

Big Lake Oil Co.'s No. 3-C University, 625 feet south and 250 feet west of NE, Section 1, Block 2, University land, location was abandoned. Big Lake Oil Co.'s No. 153 University made 60 bbls. at 3,119-31 feet. Its No. 158 University made 350 bbls. at 2,909-21 feet.

Howard County

Amerada Petroleum Corp.'s No. 2 Dora Roberts, 990 feet south and 2,240 feet west of NE cor., Section 137, Block 29, pumped 750 bbls. at 2,505-50 feet. Its No. 6 Dora Roberts, 330 feet north and 990 feet west of SE cor., Section 128, Block 29, W.&N.W.R.R. Survey swabbed 60 bbls. per hour at 2,954-69 feet. American Maracaibo's No. 2 Settles-A was shot with 225 quarts at 2,252-97 feet and made 736 bbls. Cosden & Co.'s No. 2 Settles-D, located 1,650 feet south and 990 feet west of NE cor. Section 157, Block 29, W.&N.W. Survey, pumped 240 bbls. at 3,033-40 feet. Dunnigan & Hyer's No. 4 Clay was drilled to a total depth of 1,821 feet, was shot with 40 quarts at 1,782-1,807 feet and made 85 bbls. Marland Oil Co.'s No. 6 Clay flowed 290 bbls. at 1,805-22 feet. Midwest Exploration Co.'s No. 1 Clay-C made 100 bbls. at the 1,805-37-foot pay and was shot with 15 quarts at 1,797-1,810 feet and swabbed 143 bbls. Moody Corp.'s No. 4 Roberts-E location was abandoned. Sun Oil Co.'s No. 5 Settles pumped 1,165 bbls. at 2,950-73 feet. Witherspoon and others' No. 1 Klob-Rumsey, 2,970 feet east and 150 feet north of SW cor., Section 19, Block E, swabbed 810 bbls. in 24 hours after having a 200-quart shot at 2,230-2,320 feet.

Winkler County

Independent Oil & Gas Co.'s No. 3 McCabe, 990 feet north and 2,310 feet east of SW cor., Section 36, Block B-5, topped the lime at 2,695 feet and was dry and abandoned at 3,249 feet. Marland Oil Co.'s No. 1 Morton, 330 feet south and east of NW cor., Section 27, Block B-12, topped the lime at 2,632 feet, topped the pay at 2,780 feet, was drilled to a total depth of 2,997 feet and had an initial production of 1,920 bbls., 2½ per cent water. Morris & Henshaw's No. 1-A Hendricks, 330 feet south and 1,650 feet west of NE cor. Section 28, Block B-5, topped the lime at 2,603 feet, had an oil and gas show at 2,995 feet, was drilled to a total depth of 3,080 feet and had an initial production of 150 bbls. daily, 65 per cent water. Southern Crude Oil Purchasing Co.'s No. 4 Hendricks T-88-D, located 1,320 feet east and south of NW cor., Section 4, Block B-12, topped the lime at 2,565 feet, topped the pay at 2,858 feet, was drilled to a total depth of 2,932 feet, had an initial production of 450 bbls. per hour, 2 per cent water. Its No. 6 Hendricks T-88-T, located 2,310 feet south and 990 feet west of Section 34, Block 26, topped the lime at 2,431 feet, topped the pay at 2,825 feet, increased at 2,835 feet, was

drilled to a total depth of 2,840 feet and had an initial production of 40 bbls. hourly. Shell and Danciger's No. 2 Daugherty, 2,310 feet south and 1,650 feet west of NE cor., Section 3, Block 74, topped the pay at 3,155 feet, was drilled to a total depth of 3,208 feet, plugged back to 3,170 feet and had an initial production of 990 bbls., 80 per cent water. Skelly Oil Co.'s No. 1 Hendricks-C topped the pay at 3,028 feet, was drilled to a total depth of 3,040 feet and had an initial production of 516 bbls. hourly, 28 per cent water. Prairie Oil & Gas Co.'s No. 3 Cowden, in Section 3, Block B-12, had an initial production of 825 bbls. hourly at 2,843-2,943 feet. Prairie Oil & Gas Co.'s No. 1 Tobe Morton, 2,310 feet north and 165 feet west of SE cor., Section 27, Block B-12, was dry and abandoned at 3,112 feet.

PECOS COUNTY
YATES POOL
Week ending January 29

Company, lease—	Wells	Bbls.
California Co.:		
Yates—Lease 1	18	5,717
Smith—Lease 1, Sec. 27	3	421
Smith—Lease 1, Sec. 23	6	988
Smith—Lease 1, Sec. 21	1	104
Smith—Lease 2	2	145
Smith—Lease 3	12	1,564
Tippett—Lease 1	1	42
Cosby Drilling Co.:		
M. A. Smith	1	379
Gulf Production Co.:		
All leases	32	9,093
Humble Oil & Refining Co.:		
M. A. Smith	10	1,171
Smith-B	5	650
Kirby Pet. Co.:		
J. H. Tippett	2	62
Kirby Pet. and Edson:		
Tippett	1	200
Mariand Oil Co.:		
Yates-A	8	869
Matador Oil Co.:		
Smith	2	489
Mazda & Savoy:		
Smith	3	688
McMan Oil & Gas:		
Smith-A	1	522
Smith-B	4	1,050
Smith-C	4	573
Tippett	3	266
Richardson	1	66
McMan and Marland:		
Yates	16	3,003
Mid-Kansas and Transcont.:		
Yates-A	23	10,658
Yates-B	26	5,488
Yates-C	11	4,846
Yates-D	6	5,258
Yates-E	1	110
Yates-F	4	569
Yates-G	4	842
Yates-H	7	4,364
Smith	3	1,070
Smith-Taylor	18	2,502
A. W. Hawse:		
Pecos River Bed	7	729
Pecos Valley Oil Co.:		
Fee, Sec. 22, Blk. 16	1	108
Phillips Pet. Co.:		
Smith	1	80
Red Bank Oil Co.:		
Smith	5	479
Shell Pet. Co.:		
Tippett	11	1,608
Smith	9	892
Smith-B	1	582
Smith-D	3	393
Smith-E	1	37
Simms Oil Co.:		
Smith	7	4,268
Skelly Oil Co.:		
Tippett	1	101
Texon Oil & Land Co.:		
Yates	2	....
Grand total Yates Field	287	73,046

DAILY AVERAGE PRODUCTION BY LEASES
WINKLER COUNTY
Week ending January 29

Company, farm, sec., blk.—	Wells	Prod.
Amerada Pet. Corp.:		
Cowden, 3, B-12	3	822
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	8	1,422
Hendricks-B, 44, 26	3	530
Hendricks-D, 29, B-5	8	4,835
Hendricks-E, 41, B-5	6	4,630
Hendricks-G, 40, 26	7	2,650
Hendricks-H, 28, B-5	1	15
Atlantic and Collett:		
Hendricks-F, 40, 26	13	3,120
Bankers Prod. Co.:		
Hendricks, 30, B-5	1	1,640
California Co.:		
Hendricks, 29, B-5	8	1,370
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	195
Hendricks-B, 35, B-5	1	110
Hendricks-C, 33, 26	2	310
Hendricks-D, 33, 26	1	off
Hendricks-E, 33, 26	2	540
Cranfill and Texon:		
Hutchings, 47, 26	1	85
Culberson Bros.:		
Hendricks, 40, B-5	1	120
Eastland Oil Co.:		
Hendricks, 32, B-5	2	445
Hendricks-B, 35, B-5	1	300
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	3,842
Hendricks-B, 45, 26	11	8,534
Hendricks-C, 40, B-5	6	2,554
Hendricks, 44, 26	1	365
Cowden, 3, B-12	1	1,050
Humble Oil & Refining Co.:		
Hendricks-A, 34, B-5	17	5,680
Hendricks-B, 29, B-5	6	1,217
Hendricks-C, 32, 26	8	900
Hendricks-D, 47, 26	6	995
Hendricks-C, 10, B-12	1	825
Independent Oil & Gas:		
Hendricks-A, 34, B-5	7	1,670
Howe-B, 44, 26	2	150
McCabe, 36, B-5	2	345
Hendricks, 42, B-5	1	20
Vardeman-B, 41, B-5	6	1,200
Magnolia Pet. Co.:		
Hendricks, 39, B-5	8	875
Marland Oil Co.:		
Hendricks, 33, 26	4	1,355
Hendricks-A, 29, 26	2	210
Hendricks-B, 34, 26	1	215
May Prod. Co.:		
Hendricks, 34, 26	1	10
Mining & Eng. Co.:		
Hendricks, 10, B-22	1	310
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	875
Hendricks-B, 35, B-5	3	877
Hendricks-C, 35, B-5	1	35
Hendricks-H, 33, 26	1	2,070
Hendricks-I, 47, 26	1	1,285
Prairie Oil & Gas Co.:		
Hendricks, 40, 26	6	2,860
Cowden, 3, B-12	4	2,230
Pure Oil Co.:		
Hendricks-A, 41, B-5	11	2,565
Hendricks-B, 34, B-5	13	4,615
Hendricks-C, 45, 6	14	12,645
Republic Prod. Co.:		
Hendricks-A, 45, 26	6	2,900
Hendricks-B, 41, B-5	5	2,085
Hendricks-C, 42, 5	5	300
Shell Pet. Corp.:		
Hendricks-A, 45, 26	6	1,700
Hendricks-B, 29, B-5	5	1,392
Hendricks-C, 29, B-5	6	2,669
Hendricks-D, 41, B-5	6	981
Hendricks-E, 49, B-5	4	978
Hendricks-F, 46, 26	7	2,654
Hendricks-G, 39, 26	1	90
Shell-The Texas Company:		
Cowden-A, 3, B-12	6	77
Hendricks, 45, 26	6	2,368
Hendricks-A, 29, B-5	11	4,177
Hendricks-B, 40, 26	6	1,180
Hendricks-C, 40, 26	6	3,096
Hendricks-D, 40, 26	6	1,497
Hendricks-E, 40, 26	4	778
Skelly Oil Co.:		
Hendricks, 40, 26	12	9,924
Hendricks-B, 39, 26	2	33
Hendricks-C, 39, 26	1	286
Southern Crude O. P. Co.:		
T-67 Hendricks-A, 42, B-5	3	171
T-67 Hendricks-3-A, 4, B-12	4	605
T-67 Hendricks-B, 44, 26	5	823
T-67 Hendricks-3-B, 33, 26	5	714
T-67 Hendricks-C, 33, B-5	5	843
T-67 Hendricks-2-D, 28 26	4	1,115
T-67 Hendricks-E, 42, B-5	4	150
T-67 Hendricks-F, 33, B-5	4	826
T-68 Hendricks-3-A, 33 B-5	3	349
T-68 Hendricks-B, 46, 26	2	239
T-88 Hendricks-A, 44, 26	6	1,080
T-88 Hendricks-B, 4, B-12	3	1,422
T-88 Hendricks-C, 29, B-5	7	1,099
T-88 Hendricks-D, 4, B-12	3	*12,775
T-88 Hendricks-H, 28, B-5	5	1,116
T-88 Hendricks-I, 30, B-5	7	2,738
T-88 Hendricks-J, 30, B-5	5	3,379
T-88 Hendricks-K, 41, 26	4	1,101
T-88 Hendricks-L, 4, B-12	3	522
T-88 Hendricks-M, 33, 26	29	16,726
T-88 Hendricks-N, 28, 26	5	1,296
T-88 Hendricks-O, 28, 26	1	413
T-88 Hendricks-P, 28, 26	1	286
T-88 Hendricks-Q, 27, 26	1	429
T-88 Hendricks-R, 27, 26	2	876
T-88 Hendricks-S, 34, 26	3	1,093
T-88 Hendricks-T, 34, 26	5	918
T-88 Hendricks-U, 41, 26	7	1,437
T-88 Hendricks-V, 29, 26	1	86
T-88 Hendricks-W, 5, B-12	1	386
T-89 Hendricks-A, 35, B-5	3	308
T-89 Hendricks-B, 35, B-5	2	316
T-89 Hendricks-C, 35, B-5	1	332
T-89 Hendricks-E, 40, B-5	2	5
T-89 Hendricks-F, 40, B-5	1	130
T-89 Hendricks-N, 46, 26	1	60
T-90 Hutchings, 47, 26	1	111
T-264 Hendricks, 5 B-12	1	off
Texon Oil & Land Co.:		
Hendricks-A, 41, B-5	6	931
Hendricks-B, 45, B-5	5	1,039
Winkler O. P. Co.:		
Hendricks, 33, 26	1	90
Total Hendricks Pool	508	173,046
LECK AREA		
Atlantic, Kesslar and Logan:		
Leck, 3, 74	2	909
Amerada Pet. Corp.:		
Leck, 3, 74	2	535
Empire Gas & Fuel Co.:		
Daugherty, 3, 74	1	462
Magnolia Pet. Corp.:		
Scarborough, 1, C-22	1	146
Shell & Llano Oil:		
Scarborough, 1, C-22	2	82
Shell and Danciger:		
Leck, 3, 74	2	279
Total Leck area	10	2,413
O'BRIEN POOL		
Wentz Oil Corp:		
Tobe Martin, 10, B-12	1	380
Richardson et al:		
Stockton, 50, F	1	355
Total O'Brien Pool	2	735
Grand total Winkler County	520	176,194

SUBSURFACE CONDITIONS IN SEDGWICK COUNTY

(Continued from Page 30)

Edson states: "No correlative of the Fernvale lime of Arkansas or the subsurface Viola lime of Oklahoma has been found in Kansas."

Differs From Oklahoma

From a general geological standpoint, the section of Kansas now under active development, differs greatly from the Oklahoma regions which have been in prominence so long. The Sedgwick area and surrounding territories may be compared to the Lovell region of Logan County, Oklahoma, more nearly than they may be likened to any other part of the State. The Kansas subsurface section differs materially from the section which is found in the Greater Seminole region of Oklahoma. The lithology and texture differs greatly from the conditions found in the latter region. Considering the general natural of Kansas, Mrs. Carter's paper also states "True Wilcox—rarely found in Kansas. Middle Simpson-Tyner sands and shales of Kansas and most widespread portion of St. Peter section in Kansas; is absent on pronounced highs such as Granite Ridge, north end of Abilene Arch and Barton Arch. Contains no fossils. Hominy-Wilcox sand has been noted in only 12 wells in Kansas."

It seems worthy of note that the Hunton lime and the Sylvan shale are absent in the central parts of Kansas. The Chattanooga shale is found at Sedgwick, it being the basal portion of the Mississippi lime. Another formation of importance is the Decorah, a green shale found in northern Kansas, but missing at Sedgwick. The Decorah shale contains fossils, and is found around the Russell County territory. The Wilcox is found under the Decorah. The Decorah is also missing at Sedgwick.

With the crystallization of interest in the central district of Kansas it is likely that a much more complete understanding of the subsurface conditions will be possible in the next few months.

CENTRAL TEXAS BUYS KENT-MIDDLETON CO.

(Continued from Page 122)

combined daily crude oil capacity of 8,500 bbls. This is divided as follows: Angus, 4,000 bbls.; Minerva, 2,500 bbls.; and Brownwood, 2,000 bbls.

The main offices of the company will be at Corsicana. In addition to the refineries the company owns 160 producing wells, 200 miles of pipe line and 30 service stations.

In addition to Mr. Middleton the following officers have been elected: Sherwood B. Owens, vice president and assistant general manager. Mr. Owens resides at Brownwood where he is president of the Sherwood B. Owens, Inc., drilling contractors and production.

John C. Calhoun, vice president and director of sales. Mr. Calhoun has been connected with the Kent-Middleton company since its organization in 1924 in charge of the sales department.

J. H. Edwards, vice president and manager of the Brownwood district.

E. T. Green, vice president and manager of the production of the western division. Mr. Green is also vice president and general manager of the Charter Oil Co.

Frank Lemon, secretary. Mr. Lemon has been connected with the Kent-Middleton organization as auditor since its organization.

I. N. Cerf, treasurer. Mr. Cerf is the president of the State National Bank of Corsicana.

Harry Reynolds, Dallas, secretary-treasurer and general manager of the firm of Cranfill-Reynolds Production Co., is a director of the company.

TWENTY-EIGHT PLANTS IN WEST TEXAS AREA

(Continued from Page 31)

along their lines would increase their tank car business apparently was the determining factor in the making of these contracts. Cases are cited in which the amount received for fuel oil more than paid for the cost of the crude oil plus the pipe line charge leaving a wide marbin of profit approximately equal to the revenue derived from the overhead products. These cases are exceptional but in instances where the refiner had a favorable fuel oil contract he had little cause to worry as to what he received for the refined oils.

The fact that some of the West Texas crudes have been considered relatively difficult to refine has been another factor which has tended to make the refinery operation as simple as possible. West Texas crude oils have presented some new refining problems but they have been rapidly solved and the plants with the proper equipment and operating methods are now securing yields which compare favorably with other crudes of similar gravity.

A Surplus Fuel Oil

This fact and the change in the fuel oil market situation are responsible for the trend toward more cracking facilities in the West Texas area. The steady expansion in refining capacity brought an inevitable situation in which surplus fuel oil in excess of railroad requirements has had to be marketed in competition with refiners in other Mid-Continent areas. In these sales the refiners outside their local marketing territory are compelled to absorb a freight rate differential which averages from 15 to 20 cents per barrel. This has meant in recent months that fuel oil at West Texas refineries has sold as low as 30 cents per barrel.

New companies entering the West Texas area with their plants have been aware of this situation and have realized that a well balanced plant operation is necessary if they are to compete with refineries in adjoining refining areas. The surplus fuel oil will always have to be marketed at a rate disadvantage which is interpreted to mean that future profits for most plants will be more dependent on cracking gasoline from fuel oil and gas oil than skimming it out of the crude oil.

From the standpoint of the Mid-Continent refinery market this change in refinery methods is important because it means more gasoline per barrel of crude oil run to stills.

The gasoline yields of the West Texas refineries with which the writer is familiar vary, being dependent on both the type of plant and the quality of crude oil. For the entire area, however, it is certain that the gasoline yield from the crude does not exceed 23 per cent of the crude oil charge. Thus the gasoline output of that section at present is around 12,000 bbls. daily. This compares with the daily output of other Mid-Continent areas, based on November report of the Bureau of Mines, as follows: Oklahoma and Kansas, 170,000 bbls. daily and Arkansas-North Louisiana, 20,000 bbls. At present very little kerosene is being refined at the West Texas refineries and so far as that product is concerned the refinery output is not a factor outside the local consuming area.

Increased Yields

The newer skimming plants including those under construction for the most part have better equipment and this will be reflected in the yields of gasoline. Some of the older plants are now increasing their yields. For instance one refiner operating his plant with Winkler County crude installed new fractionating towers and increased his plant yield of gasoline 4 per cent.

This improved yield from the skimming plants coupled with the larger gasoline output from the new cracking units will materially increase the gasoline production. In a well balanced skimming and cracking operation, a gasoline recovery of 50 per cent on the crude oil charge can be obtained.

The owners of two plants under construction expect to secure this 50 per cent gasoline yield. Operating with a crude oil of 29 to 32 gravity these companies expect to secure 25 per cent finished gasoline in their skimming operation. About 65 per cent of the original crude oil as a residuum from the skimming operation will then be charged to their cracking units and sufficient gasoline obtained to give a 50 per cent recovery based on the crude oil charge.

In addition to the gasoline these companies will secure a large yield of distillate part of which may be rerun and commercial grades of kerosene secured. The residuum will be a low gravity product of low cold test and a satisfactory viscosity.

In a nonresiduum operation apparently there is no reason why a gasoline yield of 60 or 65 per cent could not be obtained.

Future Development

It is sometimes asked "When will this expansion in West Texas refining stop?"

An article published during the early West Texas development by the writer attempted to explain the conditions as regards refining in that area. It was shown for instance that a 10,000-bbl. refinery securing 20 per cent gasoline yields could take care of the local consumption in that part of Texas. The

area is approximately the size of New York State but it is thinly populated and gasoline requirements are small in comparison with the thickly populated sections. The railroads are the principal outlets for fuel oils but as has been explained the supply already exceeds the demand.

In regard to marketing outside the local territory the refineries are surrounded by other refinery groups which have surplus material which they sell over a wide territory. Thus the surplus from West Texas must compete with these refiners with higher rail rates to the outside markets.

This situation under ordinary conditions would prove fatal to a majority of the refiners after a brief period of operation. The fact that crude oil has been available at relatively low prices has enabled the refiners to offset the market disadvantage and as long as that condition obtains they will continue to thrive.

West Texas has a large potential crude oil production. Pipe line capacities to outside refineries are being constantly increased and if the West Texas fields were producing at capacity this would mean an immediate tightening in the crude oil market which would work a hardship on the refiners operating plants within the field. But with a large shut-in production additional crude oil supplies will be released as needed. The fact that this crude oil is being produced in the flush areas at costs which are a small fraction of the production costs in the older Mid-Continent areas probably assures a continuance through 1929 at least of relatively low posted prices at the wells.

PROTECT, NOT PLUG, DEPLETED GAS WELLS

(Continued from Page 31)

pounds. When re-introduction of gas began 158,000,000 feet injected increased the rock pressure from 93 pounds to 128 pounds. The withdrawal of 135,000,000 feet caused the rock pressure to drop from 128 pounds to 93 pounds.

Gas trapped in the sand is often released by repressuring as proved by the experience of one company in Texas. Lean gas was metered into practically an exhausted sand. After injecting gas sufficient to increase the rock pressure 35 pounds, the gas was withdrawn and they report recovering 30 per cent more gas than was metered into the sand; also, the lean gas had picked up hydrocarbons from the sand which enriched it over 30 per cent.

The suggestion and message I wish to bring to the industry is that we should have close co-operation between the gas and the oil operators in properly protecting producing sands, with a view to using partly depleted sands for storage; that large volume gas wells, when the sand is free from water, should be protected and not plugged when the gas is depleted, but retained for storing purposes. Then, when the manufactured gas industry adopts Doctor Little's process of extracting the methane from the coal and when the gas and power plants are located at the mines—where we think they should be—surplus gas can be manufactured and stored in underground storage sufficient to meet the maximum demands and the heating load trouble will be solved.

Measurement of Gas

The measurement of gas has presented many problems on account of its physical properties of change of volume with change of pressure and temperature. Two general methods have been used. A direct method of measuring the actual volume at line pressure and temperature by displacement and an indirect method of determining the volume from the rate of flow or velocity.

The common domestic meter is an example of the displacement type. This meter is a small engine in which the diaphragms are the pistons, moving forward and backward in the two cylinders, one on each side of a middle partition. The displacement type includes diaphragm meters, liquid seal, rotary and proportional meters. In order to obtain the quantity expressed in standard cubic feet, the registration is revised by factors for pressure and temperature.

The meters based upon the indirect method are the pitot tube, orifice, venturi, thermal and variable orifice.

As in every line of business instruments have been developed for the gas industry as fast as the demand has been created. In the early days of the manufactured gas industry, the cost of manufactured gas was very high, small meters similar to those used at present were developed and installed to measure the consumption by the customers. In order to improve the efficiency of the plant and determine the loss of the expensive product, the manufacturer desired knowledge of the output of the works or station. The large wet drum type of station meter was developed to meet the requirement for accuracy and simplicity of operation. This type has been accepted as a fundamental standard of measurement for years. It will measure all of the gas which passes through it up to the maximum capacity.

In the early period of the natural gas industry, the demand for measurement did not exist. For a long time many of the producers and consumers believed that the supply was unlimited. They were firmly convinced that an adequate supply to meet all demands could be obtained by drilling a sufficient number of wells in a gas-producing area. The problem which confronted the producer was not how to conserve the gas, but how to develop a market. They had to offer the incentive of extremely low rates to offset the ever present danger of fires and explosions from the high pressure gas passing through the poor quality of pipe, fittings and inadequate regulators which were available for use at that time.

When the producers and consumers became convinced that the supply of natural gas was not unlimited and that it could be properly controlled and used as the most valuable of fuels, meters were installed for measurement of the consumption.

Higher Pressures

However, in this instance it was believed that the tin case meter was not strong enough to withstand the higher pressure at which the natural gas was distributed and the meter enclosed in an iron case was produced to meet this requirement.

In most cases, the gas was produced in the field, transmitted by pipe line to the nearest city or town, and distributed by the same party or company. As the business increased longer lines were laid. Gas was collected from many fields and distributed in many communities. The business became diversified, some became producers selling to pipe line companies which in turn sold to distributors.

It was not desirable and frequently not possible to reduce the pressure so that the gas would be measured at low pressure. The need for large capacity, high pressure meters was met in a limited way by increasing the size of the meter and increasing the thickness of the iron case for higher pressures, but the cost increased very rapidly as the pressure and capacity increased.

The high pressure large volume proportional meter was designed to cover the maximum ranges of pressure and capacity. In the proportional meter, the flow of gas is divided in two streams—one stream being small but a definite percentage of the other larger stream. The flow through the smaller stream is measured by a small meter enclosed in a high pressure case. The total flow is obtained from a register operated by the small meter. The minimum rate of flow which can be accurately measured is about 15 per cent of the maximum. The accuracy of the meter depends upon the maintenance of constant value of friction in the small meter and elimination of dirt from the edges of the main and proportional valves.

The early forms of pitot tube measurement were undoubtedly an adaptation of the pitot tube method of determining the open flow of wells. In this method, the rate of flow is determined by measurement of pressure and impact pressure. Long polished tubes were introduced in 1904 and very accurate results are obtainable from a maximum to one-third of the maximum. In case the flow should be materially increased or decreased, two or more tubes are required or one tube must be replaced by another tube if the average range of flow is to be accurately measured.

Orifice Meters

This method of measurement was supplanted by the orifice meter in which the simple accurately machined circular orifice replaced the expensive pitot tube. At this time the recording differential and static pressure gauge was introduced and gradually developed from two single recording instruments made of a heavy differential gauge casing and a separate pressure gauge to the present type of mercury type differential gauge, with both records on the same chart.

Although the orifice meter is very simple and adaptable to the widest range of conditions, it has met the demand for accuracy to such an extent that it is an accepted standard of primary measurement for all conditions where the range of maximum to minimum rate of flow does not exceed a rate of three to one, and for those cases where the range of flow is greater, the combination installation is adaptable. When the rate of flow changes for a long period of time, the capacity can be changed by removing the orifice and installing a larger or smaller orifice as required.

Venturi meters are similar in principle to the orifice meter with the exception that the pressure loss on account of the tube is a very small percentage of the differential. When the rate of flow changes materially, the venturi tube is replaced by one having a larger or smaller throat.

Another type of large volume meter was derived from the rotary blower or pump with accurately machined surfaces of the case and impellers. In this type, the measurement is by actual displacement of the gas at the pressure and temperature of flow, and the quantity in cubic feet at standard conditions is obtained by multiplying the quantity by pressure and temperature factors for each volume passing through the meter, the pressure being recorded on a volume and pressure gauge.

The thermal meter measures the quantity indirectly by measuring the current required to heat the gas a definite number of degrees. The definite temperature difference between the unheated gas and the heated gas is maintained constant, by automatically increasing or decreasing the current to the heater. The volume is expressed as the quantity in standard cubic feet regardless of line temperature or pressure, but factors must be applied if the composition of the gas changes materially as the specific heat changes with the constituents.

The orifice meter consists of a fixed orifice and the change of the rate of flow produces increasing or decreasing differential. Recently a meter has been developed which measures the rate of flow by means of a variable orifice which in its simplest form consists of maintaining a fixed velocity and the size of the orifice is automatically varied so that the opening of the orifice is a measure of the rate of flow. The rate of flow which may be varied from zero to the maximum capacity of the meters is recorded on a chart and is totalized every 20 seconds in standard cubic feet.

Gas Measurement Committee

The gas measurement committee of the Natural Gas Association was authorized by the board of directors during the year 1925, and has continued to function since that time.

In 1925 the committee conducted some tests on three orifices against a covered gas holder, made available for the work by the East Ohio Gas Co. of Cleveland, Ohio. The object of these tests was to determine the discharge coefficients for these orifices under very definite and limited conditions.

The next year, 1926, the work undertaken was a study of the effects of many types and combinations of pipe fittings at various distances from the orifice and also the effectiveness of different designs of straightening vanes in eliminating the disturbances produced by the fittings. As a result of this work, which was conducted at the plant of the Iroquois Gas Corp., Buffalo, N. Y., the committee prepared and issued a tentative code on the installation of orifice meters.

During 1927 the work of 1926 continued, using a slightly modified setup to check the disturbance measurements. Several important conclusions have been drawn from these experiments, among them the following:

When a swedge is used upstream from the orifice, straightening vanes must not be used between the swedge and orifice if a larger orifice flange is installed. Disturbances caused by a combination of various fittings have an effect proportional to the distance of the disturbance from the orifice in terms of pipe diameter. In other words, the usual theory of geometrical relationships is found to hold.

Last year an extensive series of tests was started in order to study the effect on the discharge coefficient of changing the rate of flow. This series served as a check on similar tests made by the Bureau of Standards at Edgewood Arsenal and showed changes of the same kind and approximately the same magnitude as recorded in the previous tests.

During the past summer the work of the committee was pursued first at Buffalo and later at Hastings Station of the Hope Natural Gas Co. in West Virginia.

Tests at Buffalo

At Buffalo check measurements were made to corroborate some of the data secured the year before on orifice coefficients with varying flows and the work was undertaken to determine the coefficients as affected by pressure conditions. This led to a study of the effect upon orifice measurements of the deviation from Boyle's Law which is observed with most natural gases. As a result of this work the committee has secured information which will doubtless permit it to draw up specific recommendations in its next report covering the values of orifice meter coefficients as well as the method of making allowance for deviation from the gas laws when measured under extremely high pressures.

The committee is planning to hold its meeting during the month of February, at which its work for the past year will be thoroughly analyzed and its report compiled.

The order of precision obtained in its work by this committee is of an extremely gratifying nature and compares favorably with work done in the most reputable scientific laboratories, and as a result of this the final conclusions to be reached by the committee and published in its report should place the measurement of gas by orifice meter upon a firm and unquestioned foundation, and it is a work for which the association should receive the highest commendation.

Engineering Problems

(Continued from Page 104)

is started vertically play an important part?

7. Of what importance is the speed of drilling?

8. Do weight and character of muds and the pressures and circulating velocities used play important parts?

9. Do type and condition of rotary bits play important parts?

10. What, if any, relations exist between the character and dip of beds and the direction and amount of angular deflection and lateral drift?

11. Does depth bear any definite relation to deflection and drift?

12. What other factors and conditions enter into this problem?

13. What are the relative importance of these various factors under different sets of field conditions?

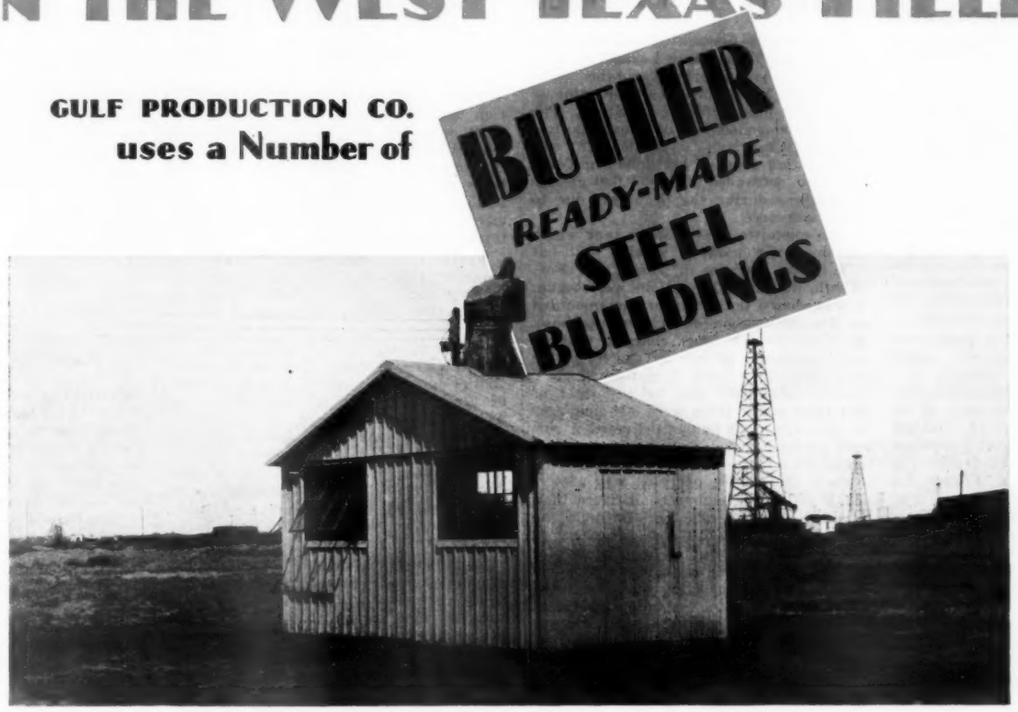
14. What are the principal causes for crooked cable tool holes?

15. What facts are available upon the actual drilling of straighter holes?

The collection of facts costs money because they are hard to get but the solution of any problem like this depends principally upon the collection and proper analysis and interpretation of facts.

IN THE WEST TEXAS FIELD

GULF PRODUCTION CO. uses a Number of



AT Crane, Texas, on Gulf Production Company property—this Butler Ready-Made Steel building safely and economically houses the suction pumps.

Throughout the Mid-Continent, Wyoming, and Montana this and other types of Butler Ready-Made buildings are serving life sentences as pump houses, boiler houses, compressor houses, warehouses, belt houses, bunk houses, cottages, oil lift plants, oil well supply stores and for most every other building purpose.

In the marketing branch of the oil industry, Butler Ready-Made bulk stations and filling stations dot the roadsides of the entire country.

BUTLER MANUFACTURING COMPANY
KANSAS CITY, MO. BUTLER MINNEAPOLIS, MINN.

THESE RELIABLE DEALERS HANDLE BUTLER READY-MADE STEEL BUILDINGS:

M & V Tank Co., at Wichita Falls, Olney, Nocona, Cross Plains, Albany, Cisco, Isom and Brownwood, Texas.

Drane-Humphrey Co., at San Angelo, Big Lake, Pyote and McCamey, Texas, and Roswell, New Mexico.

Drane Tank Co., at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; El Dorado and Madison, Kansas.

M. A. Trimmer at Blackwell, Oklahoma, and Oxford, Kansas.

Keyes-Butler Tank Co., at Casper and Cody, Wyoming.

Thomas Moran at Oil City, Shreveport and Georgetown, La., and Muskegon, Mich.

Edward J. Baker & Co., 10 S. LaSalle St., Chicago, Ill.

Butler Products include: Ready-Made Steel Buildings, Cans, Funnels, Buckets, Measuring Pumps, Truck Tanks, Underground Tanks, Storage Tanks, Bolted Tanks, Etc. Pipe that can be used as conduit, double well casing or for other purposes.

Of Interest to Sales Departments

Automobile Survey Shows Consumption Trend in Gasoline

From a standpoint of all the cars in the world, 78 per cent are now in use in the United States according to J. D. Mooney, president of the General Motors Export Co. Mr. Mooney and Clarence M. Foss at the recent annual meeting of the Society of Automotive Engineers presented a report on the "Economic Requirements of Automotive Road Vehicles Abroad." The report is of interest to the oil industry for the reason that the export demand for gasolines and lubricating oils is directly related to the foregoing demand for motor vehicles.

In regard to the relative production and use of motor vehicles the report states:

"From a standpoint of production, the United States builds 84 per cent of all the cars produced in the world. Outside of the United States, the next important producing countries are Canada, 3.9 per cent; England, 4.2 per cent; France, 3.8 per cent; Germany, 1.8 per cent; Italy, 1.0 per cent. All the other producing countries combined account for only .6 per cent of the world's total. From a standpoint of wholesale value of product, the American automobile ranks first among all industries in the United States.

It is interesting to note that the United States with over 118,500,000 people and 24,000,000 automobiles now has a ratio of 1 automobile for every 4.8 persons; China with 375,000,000 people and 21,000 automobiles has a ratio of 1 automobile to about 18,000 persons; Germany has a ratio of 1 to 114; Japan, 1 to 768; Argentina 1 to 36.

Comparing ratios with number of people per automobile in the various countries must be considered from its proper angle and with all the other factors entering into this problem properly arranged and balanced. Otherwise a distorted picture of the condition may result. The fact that in some countries the ratio shows thousands of persons to 1 automobile, and in other countries 1 automobile to only 5 to 10 persons, does not indicate that the relation can be made the same in every country, and that, for example, we will sell 1 automobile to every 4 or 5 Chinamen. The ratios as shown, however, do indicate that there are still great numbers of people throughout the world who are not enjoying the benefits of automotive transportation as do the people in the United States.

"In order to obtain a car in a low price level in the overseas market, we propose an entirely new product for individual transportation, which will be smaller and lighter than the present smallest American car, and which will be less expensive to own and to operate. We call this new product the light car, and give its fundamental requirements as follows:

"That must have low first cost and must be economical to operate.

"That the over-all cost must be sufficiently low to locate it in the proper price class.

"That must have sound pocketbook value.

"That must be made readily available to the buying public in the overseas market."

BOYD TO SPEAK

W. R. Boyd Jr., executive vice president of the American Petroleum Institute, will speak at spring meeting of the American Oil Men's Association to be held at Chicago, February 13. Mr. Boyd will discuss the code of ethics.

MAY LICENSE DEALERS IN TEXAS TO PREVENT FRAUD

The Senate Committee on State Affairs in the Texas State Legislature now in session has reported favorably on a bill which will license every operator of a gasoline pump within the State. The bill was recommended by the committee following hearings in which it was claimed that gasoline consumers in Texas had been defrauded of 17,000,000 gallons of gasoline during the past year due to short measures.

The committee was shown a tank which the inspector used in making tests at 374 filling stations in Texas. In Fort Worth, where the inspections were begun, it was alleged that one shortage amounted to 1½ gallons on a 5-gallon purchase. In Galveston, it was charged that in one instance 5 gallons of gasoline were purchased and only 3 gallons and 2 ounces delivered. Out of the total of 374 tests made, there were 304 instances of shortages; 20 pumps delivered a correct amount of gasoline and 50 delivered more than the number of gallons purchased, though the overplus was always small and never amounted to more than a quart. The average net shortages, he said, amounted to 2.9 per cent.

The bill would provide for a license fee of $2 to be assessed against every person that operates a gasoline pump and the funds would be used to employ additional inspectors to enforce the act. It was charged by all of those that appeared before the committee that there is a trade practice of charging so many gallons of gasoline to operators of the pump and then permitting them to keep whatever money comes to them more than the charges for the number of gallons charged against them.

BUY CROWN OIL STOCK

CHATHAM, Ontario, Feb. 2.—The Dominion Oil Co. of Toronto has purchased the entire capital stock of the Crown Oil Co. of Hamilton, Ontario, operating a wholesale and retail gasoline and oil business. Crown Oil Co. is distributor for Ontario of the Veedol motor lubricants.

It is understood the head office of the merged companies will be transferred to Hamilton, where management will be in the hands of Woods Brothers, with K. Woods as president of the consolidated organization. Crown Oil Co. owns and operates a large number of filling stations in the Hamilton district, and has over 800 distributors of Veedol oils in Ontario.

OPENS CHICAGO OFFICE

CHICAGO, Feb. 2.—The Amarillo Producers & Refiners Corp. has opened offices at 624 South Michigan Avenue, this city, under the management of T. F. Caldwell, who has been connected with the organization for some time as traffic manager and assistant sales manager at headquarters. Mr. Caldwell has had a wide experience in the industry, having operated a refinery at Healdton, Okla., some years ago. Previously, he was with the Missouri-Kansas-Texas Railroad at Oklahoma City.

N. Y. STANDARD MARKETING

NEW YORK, Feb. 2.—Standard Oil Co. of New York has incorporated three retail marketing organizations, Lotos Oil & Distributing Corp., Val-U Service Stations, Inc., and the Service Leasing Corp. These are in addition to the chain of 67 filling stations in Greater New York which the company acquired by purchase from independent owners this week.

To Eliminate Bad Sale Practices in Aviation Products

NEW YORK, Feb. 1.—With the aviation industry facing a banner year in 1929, steps to put the production and marketing of petroleum products used in this industry on a scientific and economic basis are being taken by leading oil companies, it was disclosed at the annual meeting of the Aeronautical Chamber of Commerce here this week.

Frank J. Shipman of The Texas Corporation, this city, chairman of the petroleum section of the chamber, attended the meeting as the representative of interested oil companies, and spoke briefly on the work which the petroleum section contemplates in connection with its activities in the production and marketing of airplane motor fuel and lubricants. The petroleum committee, while consisting principally of nontechnical men, is working to correlate the research work which various agencies have been conducting toward the standardization of airplane fuels and lubricants, and will likewise study marketing methods in aviation sales.

Reports from a number of leading oil companies in all parts of the country indicate that there will be a marked expansion in sales activity in the aviation branch of the industry this year. Most of the leading oil companies are now establishing filling stations at the principal air ports and flying fields, and a number have worked out plans for large stations at the flying fields, to carry both automobile and airplane grades of gasoline and lubricating oil.

Maj. L. D. Gardner, president of the Aeronautical Chamber of Commerce, in his annual report, said of the petroleum section committee:

"Establishment of this section is a typical illustration of the spontaneous acceptance by the oil industry of the departmental idea, that is, the idea of specialized group committees within the chamber. The petroleum fuel and oil corporations within and without the chamber organized during the Chicago show, setting up a committee in conformance with the regional plan of the chamber. This section has commanded widespread interest in the petroleum industry, due partly to the abuses that have developed in giving free oil and gas for stunt publicity.

"Chairman Frank J. Shipman has requested the engine manufacturers to tell him what problems they are encountering, involving fuel and lubricants, so that the gas and oil producers may, as a section, co-operate with the engine manufacturers in correcting these conditions. At the same time, the chairman has communicated with the various oil companies in the section requesting their co-operation."

Considerable interesting data regarding the progress of aviation during the past few years was brought out during the progress of the meeting. Seven years ago, it was disclosed, the capital invested in civil aircraft activities amounted to approximately $5,000,000; today it is several hundred millions. Seven years ago the industry employed 5,000 persons; the number now employed is about 75,000. In 1921, total domestic production was 302 airplanes; in 1928 it was over 4,000. Seven years ago there were less than 300 commercial pilots in this country; now there are more than 5,000. Then there were 1,200 commercial aircraft in gypsy operations; now there are 255 planes operating on regular schedule and more than 4,500 in general commercial use. Then

(Continued on Page 151)

DIXIE DISTRIBUTORS ORGANIZE

CHICAGO, Feb. 2.—The Dixie Distributors, Inc., have secured incorporation papers in Illinois and the plan is underway for the complete organization of such a body of distributors as has been in existence for several seasons in Michigan and Wisconsin. The plan of the Dixie Distributors includes collective buying and collective advertising.

The present address of the organization, which is still in a formative stage, is 225 North Fourth Street, Springfield, Ill. A movement is also on foot for the organization of such a body in Indiana. There will be another general meeting of the Dixie Distributors at the spring meeting of the American Oil Men's Association, at Chicago early next month.

ILLINOIS GASOLINE TAX

CHICAGO, Feb. 2.—Governor Emmerson in his inaugural address advocated the passage of an act imposing a tax of 3 cents on all gasoline sold in the State for automotive purposes. Since his inauguration he has pushed the introduction of the measure which as presented to the legislature provides for a 3-cent tax, 2 cents to go to the State and 1 cent to the county in which it is collected. The passage of a gasoline tax is assured, the exact form being the only matter in doubt.

ISSUE SAFETY PAMPHLET

The Public Relations Division of the American Petroleum Institute has prepared a pamphlet entitled "Simple Precautions Make Gasoline Safe." The pamphlet explains the precautions necessary to assure the safe handling of gasoline by consumers. Copies of this pamphlet are obtainable from the American Petroleum Institute, 250 Park Avenue, New York City.

BUILDS BULK STATION

The Sylvestre Oil Co., Inc., of New York City, has opened up a large fuel oil bulk station on Brooklyn Creek. The station has a dock 180 feet long. The creek has been dredged so that the depth is 16 feet.

The same company recently purchased acreage near Montreal along the St. Lawrence River. Five 80,000-bbl. storage tanks are to be installed for fuel oil storage.

SOCONY BURNER

NEW YORK, Feb. 2.—Standard Oil Co. of New York has reduced the capital of the Socony Burner Corp. from $3,000,000 to $200,000. The company is now in process of liquidation. The business of this subsidiary, which marketed oil-burning equipment, was sold some time ago to the Timken-Detroit Axle Co.

BUYS SERVICE STATIONS

NEW YORK, Feb. 2.—The Standard Oil Co. of New York is steadily increasing the number of stations in this city through purchase and new construction. The company recently acquired 67 stations from independent owners in New York, Westchester and Long Island.

NEW PLANTS IN EDMONTON

CHATHAM, Ontario, Feb. 2.—British-American Oil Co. of Toronto has purchased five sites in Edmonton, Alberta, at an aggregate cost of $42,700. A $60,000 office and warehouse building will be erected on one site, and the others used for super filling stations.

THE OIL INSURANCE ASSOCIATION

PROVIDES FOR REAL FIRE INSURANCE FOR THE OIL INDUSTRY — THROUGH ITS MEMBER COMPANIES

The Oil Insurance Association is in its tenth year of successful operation, with 100% performance record testifying to the dependability, thrift and speedy and complete satisfaction of its service.

OIL INSURANCE ASSOCIATION MEMBER COMPANIES

Aetna Insurance Co., Hartford, Conn.
Alliance Insurance Co., Philadelphia, Pa.
Allied Underwriters Agency, Hong Kong
American Insurance Co., Newark, N. J.
American Alliance Ins. Co., New York, N. Y.
American Central Insurance Co., St. Louis, Mo.
American Eagle Fire Ins. Co., New York, N. Y.
Automobile Insurance Co., Hartford, Conn.
Ben Franklin Underwriters, Pittsburgh, Pa.
Boston Insurance Co., Boston, Mass.
Caledonian Insurance Co., Edinburg, Scotland.
California Insurance Co., San Francisco, Calif.
Camden Fire Insurance Association, Camden, N. J.
Carolina Insurance Co., Wilmington, N. C.
Central States Fire Ins. Co., Wichita, Kans.
Citizens Insurance Co., St. Louis, Mo.
City of New York Insurance Co., New York, N. Y.
Columbia Insurance Co., Jersey City, N. J.
Commerce Insurance Co., Glens Falls, N. Y.
Commercial Union Assurance Co., London, Eng.
Commercial Union Fire Ins. Co., New York, N. Y.
Commonwealth Insurance Co., New York, N. Y.
Concordia Fire Insurance Co., Milwaukee, Wis.
Connecticut Fire Ins. Co., Hartford, Conn.
Constitution Underwriters, Springfield, Mass.
Continental Insurance Co., New York, N. Y.
County Fire Insurance Co., Manchester, N. H.
Eagle Star & British Dom. Ins. Co., Ltd., London, Eng.
East & West Insurance Co., New Haven, Conn.
Federal Union Insurance Co., Chicago, Ill.
Fidelity-Phenix Fire Ins. Co., New York, N. Y.
Fire & Marine Underwriters, Hartford, Conn.
Fireman's Fund Ins. Co., San Francisco, Calif.
Firemens Insurance Co., Newark, N. J.
Firemens Underwriters, Newark, N. J.
Franklin Fire Insurance Co., Philadelphia, Pa.
Girard Fire & Marine Ins. Co., Philadelphia, Pa.
Girard Underwriters, Philadelphia, Pa.
Glens Falls Insurance Co., Glens Falls, N. Y.
Great American Ins. Co., New York, N. Y.
Hanover Fire Insurance Co., New York, N. Y.
Harmonia Fire Insurance Co., Buffalo, N. Y.
Hartford Fire Insurance Co., Hartford, Conn.
Home Fire & Marine Ins. Co., San Francisco, Calif.
Home Insurance Co., New York, N. Y.
Hudson Insurance Co., New York, N. Y.
Imperial Assurance Co., New York, N. Y.
Insurance Co. of North America, Philadelphia, Pa.
Insurance Co. of State of Pennsylvania, Philadelphia, Pa.
Jersey Fire Underwriters, Newark, N. J.
Liverpool & London & Globe Ins. Co., Liverpool, Eng.
Mechanics Insurance Co., Philadelphia, Pa.
Mechanics Underwriters, Philadelphia, Pa.
Mercantile Insurance Co., New York, N. Y.
National Ben Franklin Fire Ins. Co., Pittsburgh, Pa.
National Fire Insurance Co., Hartford, Conn.
National Liberty Ins. Co. of America, New York, N. Y.
National Security Fire Ins. Co., Omaha, Neb.
Newark Fire Insurance Co., Newark, N. J.
New Hampshire Fire Ins. Co., Manchester, N. H.
New York Underwriters Ins. Co., New York, N. Y.
Niagara Fire Ins. Co., New York, N. Y.
North British & Mercantile Ins. Co., London, Eng.
Norwich Union Fire Ins. Society, Norwich, Eng.
Occidental Underwriters, San Francisco, Calif.
Old Colony Ins. Co., Boston, Mass.
Palatine Insurance Co., London, Eng.
Patriotic Insurance Co. of America, New York, N. Y.
Pennsylvania Fire Ins. Co., Philadelphia, Pa
Philadelphia Fire & Marine Ins. Co., Philadelphia, Pa.
Phoenix Assurance Co., London, Eng.
Phoenix Insurance Co., Hartford, Conn.
Providence Washington Ins. Co., Providence, R. I.
Queen Insurance Co., New York, N. Y.
Reliance Insurance Co., Philadelphia, Pa.
Rochester Dept. of Great American, New York, N. Y.
Royal Exchange Assurance Co., London, Eng.
Royal Insurance Co., Ltd., Liverpool, Eng.
Scotch Underwriters, Edinburg, Scotland.
Scottish Union & National Ins. Co., Edinburg, Scotland.
Security Insurance Co., New Haven, Conn.
Sentinel Fire Insurance Co., Springfield, Mass.
Springfield Fire & Marine Ins. Co., Springfield, Mass.
St. Paul Fire & Marine Ins. Co., St. Paul, Minn.
Star Insurance Co. of America, New York, N. Y.
Sun Insurance Office, London, Eng.
Svea Fire & Life Ins. Co., Gothemburg, Sweden.
Superior Fire Ins. Co., Pittsburgh, Pa.
Travelers Fire Insurance Co., Hartford, Conn.
Union Assurance Society, London, Eng.
Union Insurance Society of Canton, Hong Kong.
United Firemen's Insurance Co., Philadelphia, Pa.
Urbaine Fire Ins. Co., Paris, France.
Westchester Fire Ins. Co., New York, N. Y.
World Fire & Marine Ins. Co., Hartford, Conn.

AMONG THE PURPOSES FOR WHICH THE OIL INSURANCE ASSOCIATION WAS ORGANIZED ARE:

To enable oil operators to secure sufficient dependable insurance to adequately protect their interests.
To furnish property holders and those controlling oil business expert engineering and inspection service, so methods of insuring this class may be standardized, and efficient fire protective devices installed and properly maintained, thereby stabilizing the business to the point which will enable insurance companies generally to accept the class at fair cost and under equitable policy rates.
To make available the most business-like insurance arrangement for all oil companies.

Complete details of the Oil Insurance Association may be obtained from your insurance agent or broker.

OIL INSURANCE ASSOCIATION
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TRADE **YALE** MARK

Ball-Bearing Spur-Geared Chain Blocks

Ball Bearing Load Sheave

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Permanently

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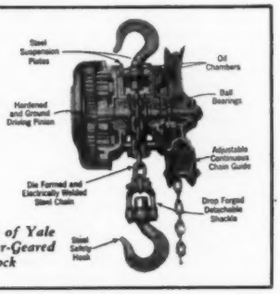

Cut open view of Yale Ball-Bearing Spur-Geared Chain Block

Yale Handles Loads Better Yale Equipment Is Best

They are the most efficient hand hoisting devices produced—and their maximum efficiency is maintained over a long span of years—their old age retains the full vigor of their youth.

With them one man lifts 2,000 pounds three feet in forty-two seconds.

Words become facts when proved. Yale & Towne is the pioneer of the chain block business in America, making the first block in 1875, and is the world's largest producer of chain blocks.

The chain has much to do with block efficiency. Yale makes all its own shock sustaining chain of heat-treated steel, and has the greatest experience in making chains solely for chain blocks.

The steel is of uniform texture, each link is die-shaped, electrically welded, forged and trimmed for accurate fit into the pockets of the load sheave. The perfection of pitch eliminates friction and wear, and retains maximum efficiency.

The Spur-Geared block operates on the familiar mechanical principle of the planetary gear system. The spur-gears revolve planet fashion around a central pinion, and transfer the motion of the pinion to the load sheave which carries the hoisting chain. This type of gearing multiplies enormously the efforts of the operator and enables him to lift heavy loads with ease.

To insure a chain block which will serve you permanently with *maximum maintained efficiency* specify the Yale Ball-Bearing Spur-Geared Chain Block. It does not grow old—it does retain its full youthful vigor. Booklets gladly sent on request.

YALE MAKES

Yale Ball-Bearing Spur-Geared Chain Blocks, Yale Screw-Geared Chain Blocks, Yale Differential Chain Blocks, Yale Roller Bearing Trolleys and Cranes, Electric Chain Hoists, Electric Industrial Trucks.

Factory Locking Equipment—To acquire locking control, security and convenience throughout the factory, use Yale Master Keyed Locks.

The Chain Block with Complete National Distribution

YALE

The Yale & Towne Mfg. Co., Stamford, Conn., U. S. A.
Canadian Branch at St. Catharines, Ontario

YALE MARKED IS YALE MADE

Hoisting and Conveying Systems

Analyses of Hydrocarbon Mixtures

Charcoal Test Comes Within 10 Per Cent of Calculated Value. Point Out Causes of Discrepancies

By P. W. Hill*

This subject represents one of the many valuable uses of the fractional analysis of hydrocarbon mixtures. That is, its use as a "yard-stick," against which to correlate our present more or less empirical tests, with the result that our routine tests will mean more to us, and, perhaps, by this means, they may be improved in procedure. At least, fractional analysis should provide a sound basis for any further changes.

First, let us consider the charcoal test. This test has been in general use in California for over three years, as a means of determining the gasoline content of natural gas and vapors. For the purpose of this discussion we shall assume that by gasoline content we mean the hydrocarbons, iso-butane and heavier, present in the gas, expressed as liquid gallons per thousand feet. It is realized, of course, that it is not possible in most cases to include all of the butanes available in our plant product, and still meet the specifications for high distillation recovery gasoline. Yet, for test purposes it is convenient to assume an upper limit for gasoline. With this in mind, we shall now attempt to see how closely the results of the charcoal test compare with the theoretical content as defined.

Certain substances, notably charcoal and silica gel, possess the property of adsorbing gases upon their inner surfaces. In adsorption there is a marked contraction in volume. Heat is always liberated in adsorption—the amount of heat varying with the latent heat of the gas, and the quantity adsorbed upon the capillaries of the solid adsorbent. In the case of natural gas or a mixture of gases there is also a phenomenon known as selective adsorption; that is, a gas of lower vapor pressure will replace one of higher vapor pressure in the capillaries.

For example, in the case of a mixture of methane, ethane, and propane—at first the gas mixture is adsorbed complete, the methane replacing the air already adsorbed and the ethane and propane replacing the methane which in turn replaces more air and so on until the air has been replaced by methan. Then there comes a "break point" when methane begins to pass through having been replaced by ethane; similarly there is a point where ethane and then propane escape until finally the mixture passes through intact. It is believed that it is these consecutive replacements which cause what is known as temperature rises observed in taking a charcoal test.

In order to test out this theory of selective adsorption, and determine the relation of the temperature rises, a test was conducted, some time ago, in which the gases leaving the charcoal tube were collected and analyzed. The total volume of gas leaving the tube between each of the temperature rises was collected, measured and analyzed separately.

The results bear out the theory very well. From the start of the test to the top of the first rise the sample collected consisted of air and methane, from this point to the top of the second rise, the sample consisted of almost pure methane. Then, between the second and third rises we find ethane leaving the tube in addition to the methane, and between the third and fourth rises methane, ethane, and propane are leaving the tube. We do not find any butane leaving until the top of the fourth rise. Thus, based upon the results of this and a similar test we are of the opinion that the charcoal will retain all of the desirable constituents of a natural gas, provided the test is not carried beyond the fourth temperature rise.

Now that we have the proper sample for a determination of gasoline content, the problem of measurement still confronts us. This is accomplished in the usual procedure, by heating the charcoal under pressure in the presence of glycerine. The gasoline is distilled from the charcoal, condensed in a iced-coil, and measured in a receiver. It was found by experiment that the results as determined in this manner fell somewhat short of the theoretical content as calculated from an analysis. This discrepancy should be caused by a loss of butanes at some point after the test is taken, and before the condensate is measured. During the distillation a volume of uncondensed gases escape from the apparatus, amounting to approximately 0.2 of a cubic foot during an average distillation. An analysis of this vent gas revealed something over 20 per cent of butane and heavier constituents.

An analysis made of the liquid recovered showed that there was considerable propane in the condensate. Thus we find a condition where we are losing desirable material on one hand and retaining undesirable material on the other hand.

Example

For the purpose of emphasizing this point we will cite a definite example: A charcoal test was made on a rather wet gas. The products of distillation were carefully saved and measured. Fractional distillations were then made. The uncondensed gas showed the presence of 24.1 per cent butanes and heavier while the liquid showed the presence of 11.7 per cent by volume, of propane. The total condensate measured 56.5 cc. of which 6.5 cc. is composed of propane. (Reducing the butane and heavier found in the vent gases to liquid cc.'s we find that 6.0 cc. of butane have left the apparatus. With a gin of 6.5 cc. of the undesirable propane and a loss of 6.0 cc. of the desirable butane, we find that, in this case at least, we have struck a balance so that the charcoal test was virtually correct. Reducing these results to gallons per 1,000 feet we have:

Regular test 56.5 cc. representing 3.93 G.P.M.
Deducting propane from condensate 50.0 cc. representing ..... 3.48 G.P.M.
Including lost butane, etc., 56 cc. representing ..... 3.90 G.P.M.

Unfortunately, we do not have the fractionation of the wet gas used in this test, with which to correlate the results of the charcoal test. Turning our attention to the results of recent fractionations of wet gas and their accompanying charcoal test results, we find a rather disappointing lack of correlation.

Based upon a somewhat limited number of tests on widely varied samples, we find the results of the charcoal varying between 90 and 108 per cent of the calculated value, with an average of slightly over 95 per cent.

The following are representative fractionations and their accompanying charcoal tests made according to the Standard Procedure:

EXAMPLE NO. 1—VENTURA FIELD

	% Total	G.P.M.
Air	0	...
CO_2	0	...
CH_4	89.32	...
C_2H_6	2.01	...
C_3H_8	4.29	...
iso-C_4H_{10}	.73	0.24
n-C_4H_{10}	2.06	0.66
C_5H_{12} and heavier	1.59	0.64
Total	100.00	1.54

Charcoal test, 30 lbs.-32°—1.43 G.P.M.
Difference 7.1 per cent.

EXAMPLE NO. 2—SANTA FE SPRINGS FIELD

	% Total	G.P.M.
Air	0.00	...
CO_2	0.30	...
CH_4	78.73	...
C_2H_6	9.20	...
C_3H_8	4.68	...
iso-C_4H_{10}	1.92	0.63
n-C_4H_{10}	1.44	0.45
iso-C_5H_{12}	0.78	0.29
n-C_5H_{12}	0.85	0.31
C_6H_4 and heavier	2.10	0.98
Total	100.00	2.66

Charcoal test 30 lbs.-32°—2.52 G.P.M.
Difference 5.3 per cent.

EXAMPLE NO. 3—SIGNAL HILL FIELD

	% Total	G.P.M.
Air	0.00	...
CO_2	0.00	...
CH_4	72.49	...
C_2H_6	9.43	...
C_3H_8	8.49	...
iso-C_4H_{10}	1.70	0.56
n-C_4H_{10}	4.60	1.45
C_5H_{12} and heavier	3.47	1.42
Total	100.00	3.43

Charcoal test 30 lbs.-32°—3.34 G.P.M.
Difference 2.6 per cent.

EXAMPLE NO. 4—SANTA FE SPRINGS FIELD

	% Total	G.P.M.
Air	0.00	...
CO_2	0.00	...
CH_4	70.80	...
C_2H_6	9.92	...
C_3H_8	8.14	...
iso-C_4H_{10}	1.69	0.62
n-C_4H_{10}	4.37	1.58
iso-C_5H_{12}	1.65	.60
n-C_5H_{12}	1.06	.39
C_6H_4 and heavier	2.17	1.22
Total	100.00	4.39

Charcoal test 30 lbs.-32°—4.07 G.P.M.
Difference 3.1 per cent.

It is quite difficult to generalize on the basis of the limited number of fractionations available. More reliable information will undoubtedly be forthcoming in the future. But it may be well to outline some of the factors which should influence the relation of the charcoal test to the calculated results—guided by the results so far available.

Type of Gas

The ratio of the amount of the various hydrocarbons to each other will have a bearing on the amount of condensate recovered. The total butanes in the samples investigated varied from 48 to 66 per cent of the recoverable constituents.

Unfortunately, the distillation of the charcoal sample is a batch process, in which, at the beginning, the partial pressure of the recoverable fractions is re-

*Paper presented at meeting California Natural Gasoline Association.

FOUR IMPORTANT REQUIREMENTS IN GASOLINE FRACTIONATING COLUMN

By E. R. Cox*
The Texas Company

The purpose of all columns is to rectify or stabilize the plant output and hence they are usually termed rectifiers or stabilizers. As it is generally agreed that the undesirable constituents of natural gasoline are the propane and lighter fractions and the desirable constituents the normal butane and heavier fractions, the object of fractionation is to make as sharp a cut as possible between propane and normal butane. This leaves iso-butane in doubt. Some consider it desirable and others undesirable.

Perhaps the commonest practice is to make a rather rough cut through iso-butane, retaining a portion and rejecting the rest. In this way, a propane-free product can be made without sacrificing any of the normal butane.

Considering this to be the object of our column, we can visualize the operation as follows: At the top of the column, butane is endeavoring to escape in the vapor and we prevent this by pouring in a large amount of propane to wash it back. At the bottom, propane is endeavoring to escape in the liquid and we prevent this by sending up a large amount of butane vapor to carry back the last trace of propane.

The butane vapor traveling upward is progressively replaced by propane. Likewise, the propane reflux traveling downward is replaced by butane. The reason for this replacement is the different vapor pressures of the two. If we boil a mixture of propane and butane, and analyze the vapor given off, we find that the proportion of propane in the vapor is much higher than in the liquid. Conversely, if we condense a small portion of a mixture of propane and butane, the condensate will be much richer in butane than the original vapor. This fractional condensation and revaporization taking place on each tray causes the gradual replacement of butane by propane in the vapor and of propane by butane in the liquid.

Since, as we proceed from the top downward, we are boiling a mixture which is constantly acquiring a higher boiling point, we must increase the temperature from tray to tray.

The foregoing indicates the main requirements of a successful fractionating column. They are:

1. A smooth temperature gradient from top to bottom.
2. An adequate number of trays.
3. Means for condensing the proper quantity of reflux for the column top.
4. Means for providing sufficient ascending vapor at the bottom.

The temperature gradient is naturally attained by the requirements at top and bottom. It is rendered smoother and the operation more satisfactory by lagging the column.

Thirty trays have proven quite satisfactory for average plant operation. Theoretically, the greater number of trays, the less reflux required. Fifty tray columns are now being seriously considered and seem to promise a substantial reduction in reflux ratio. This would affect both the cooling and heating required, and would indicate a considerable saving in operating costs.

Two means are commonly employed for providing reflux. The first is a condenser integral with the top of the column. Regulation is obtained by varying the quantity of cooling water and may be either automatic or manual. The second consists in piping the overhead vapor to a coil in a cooling tower, and pumping back the required amount of condensate. The latter, though perhaps more expensive, obviates scaling difficulties and is very dependable and satisfactory in operation.

Two methods are also in common use for heating the bottom. One is by a built-in heater or coil, and the other by a separate reboiler or kettle. The latter affords more heating surface and a lower time element. Regulation is obtained either by a thermostat controlling the admission of steam or by a pressure reducing valve, manually adjusted. Both types of reboiler and both methods of control have given satisfaction.

When the rectification of gasoline first became general, there was considerable difference of opinion in regard to the proper pressure at which to operate a column. It is evident from the above discussion that pressure itself plays no part in the process. It is important, nevertheless, in that it determines the operating temperatures. A high pressure requires high temperatures at top and bottom, while a low pressure calls for low

Continued on Page 143)

*Paper presented at meeting of the California Natural Gasoline Association.

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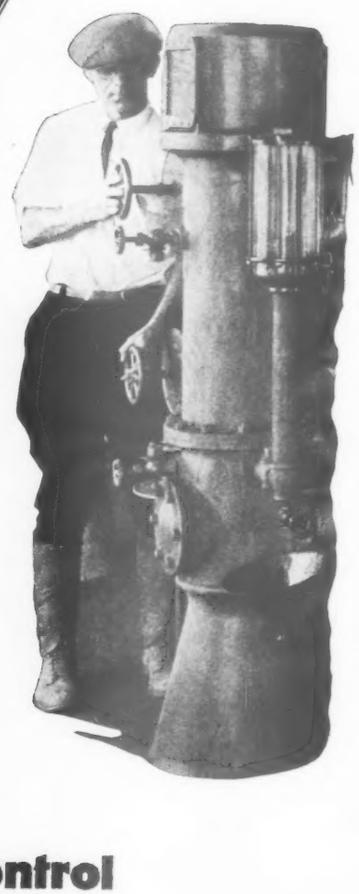

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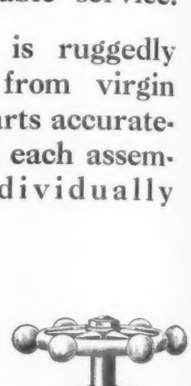

Fig. 178
Bronze Hydraulic Gate Valve

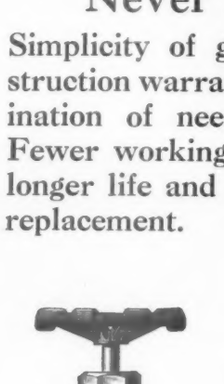

Fig. 190
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duced by the uncondensable gases, so that there is a considerable loss of butanes in the vapor phase. Hence, if the gas contains considerable butane this loss will be heavier. Conversely, if there is a preponderance of the heavier hydrocarbons, propane will be dissolved in the condensate and so show an abnormally high content.

Taking the Sample

There has been considerable discussion of the proper point to terminate the charcoal test. Although we are of the opinion that there is no loss of butane before the top of the fourth rise, it would seem advisable in the light of present evidence to terminate the test before this point is reached in order to compensate for the loss of butane during the distillation. In order to illustrate this point, we conducted a series of tests, a few days ago, on the gas from a well flowing naturally from the deep zone at Santa Fe Springs. The first test was run to the top of the fourth rise, the second test to .25 cubic feet beyond the top of the fourth rise, and subsequent tests to points ahead of the fourth rise.

Results

Calculated G.P.M. from fractionation	2.54 G.P.M.
Test No. 2—4.95 cu. ft.	2.42 G.P.M.
Test No. 1—4.70 cu. ft. (fourth rise)	2.48 G.P.M.
Test No. 3—4.45 cu. ft.	2.52 G.P.M.
Test No. 4—4.20 cu. ft.	2.38 G.P.M.
Test No. 5—3.95 cu. ft.	2.36 G.P.M.

From these figures it is seen that the test terminated just before the top of the fourth rise was the one which gives us a result closest to the calculated value. We do not wish to lay down any hard and fast rules based on such meager data, but the results are given in support of a tendency noted in connection with other tests.

Distilling the Sample

As has been noted before, it is believed that most of the inaccuracy of the charcoal test exists in the distillation, since the amount of condensate collected depends on the relative amounts of the constituents and their vapor pressures.

There is also another factor which may influence the result. Toward the end of a normal distillation there is considerable fixed gas given off resulting from some decomposition. This gas, too, may become saturated with gasoline vapor and so reduce the yield.

Summary

In summing up these remarks, we would like to make it plain that the data from which to draw any definite conclusions is by no means complete, and that any statements made are in the nature of hypotheses derived from indications noted from data thus far available, and are more in the nature of a progress report.

However, in reviewing the tests we have, we find that the charcoal test comes within, roughly, 10 per cent plus or minus, of the calculated value and that the average deviation is approximately 5 per cent in favor of the fractionation results. We have also pointed out some of the possible causes for discrepancies.

In conclusion, we would like to make a plea that future gas fractionations that are made be accompanied with charcoal test, in order that more data may be available for a more accurate comparison.

FOUR REQUIREMENTS GASOLINE COLUMN

(Continued from Page 140)

temperatures. Hence, the problem becomes merely: "What temperatures can we obtain most easily and economically?"

Operating at from 10 pounds to 15 pounds pressure, the bottom heating may be obtained from exhaust steam, but the top cooling requires refrigeration. This is usually obtained by recompressing the overhead vapor, condensing and expanding the condensate directly into the top of the column.

Operating at from 150 pounds to 175 pounds requires live steam for heating and allows atmospheric cooling for the top. Probably the deciding factor, which has turned the balance against low pressures, is the fact that all gasoline contains a certain amount of water which will freeze in the top trays and cause a great deal of trouble unless the gasoline is first thoroughly dehydrated. To determine the most economical method, the cost of dehydration and recompression must be balanced against the cost of live steam.

Control of Feed

The control and disposition of the feed is also a matter of importance. The feed is from two or more sources. First, there is the rundown from the main gasoline condenser. This is usually operated at pressures ranging from 15 pounds to 25 pounds. At temperatures obtainable with atmospheric cooling, this leaves a large quantity of uncondensed vapor containing a considerable amount of butane and even pentane and heavier. This may be partially recovered in either of two ways. First, it may be vented to the suction of the wet gas compressors and so recycyled in the absorber. Or secondly, it may be recompressed in one or two stages.

In one stage the pressure is usually carried up to 150 pounds or 200 pounds, in two stages, frequently to 250 pounds or 300 pounds. This would supply three sources of feed to the rectifier: the primary rundown, the low stage condensate, and the high stage condensate. In many of the earlier installations, these were introduced at different levels. This gave considerable trouble through surging. Since all three of these feeds fluctuated and the surges did not synchronize, the result was a spasmodic working of the column. This was overcome by comfining all the streams in one surge tank, and feeding the resultant mixture in at one level.

If the surge tank is made rather large, say to hold about a three hours' run, the feed can be made quite uniform in both quantity and quality. This should be heated in an exchanger, by the outgoing gasoline and further in a steam preheater controlled by a thermostat. The temperature should be about midway between that of top and bottom.

The following hookup has proven quite satisfactory: The feed from the primary rundown is pumped to the surge tank, the steam operating the pump being controlled by a float valve holding a level in the rundown tank. The uncondensed vapors from the rundown tank are compressed to 175 pounds and pass to a coil in a cooling tower, and thence to an accumulator. The uncondensed vapors here are vented to fuel or the dry line. The condensate is released through a float controlled valve to the surge tank. The pressure here is the resultant between the rundown, approximately 25 pounds, and the recompressor condensate, 175 pounds, and ranges between 90 pounds and 100 pounds.

The feed is pumped from this surge tank through an exchanger and preheater into the column by a rate controlled pump, the rate being adjusted from time to time as the level rises or falls. The bottoms run directly into a kettle maintained at a temperature of 250 degrees by a thermostat-controlled steam valve. The kettle is vented back to the column just under the bottom tray. The finished gasoline is released by a float-controlled valve, through the exchanger, through a final coil in the cooling tower and thence to storage.

The vapor from the top of the column, at about 110 degrees Fahrenheit, is substantially all condensed in a coil in the cooling tower and collects in another accumulator. The reflux is pumped from this accumulator to the top of the column by a rate controlled pump. A high level is maintained in this accumulator by a float controlled valve releasing the surplus liquid to fuel of the dry line. This rate controlled pump is really the master control for the operation of the stabilizing process.

It is by controlling this reflux rate that specifications are met, hence the rate controller should be the best obtainable.

Capacity of Columns

As to the capacity of columns, there are several factors which enter. The upper limit is indicated when a column primes. The priming point is reached when the pressure drop of the vapor through a tray is just equal to the head of liquid in the down pipe, less the friction drop in the down pipe. If the down pipes are too small, the capacity of the

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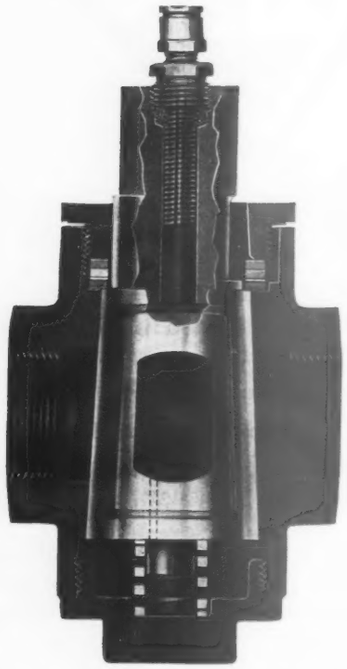

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column may be increased somewhat by enlarging them. The vapor pressure drop is due to two causes, first, the friction drop through the perforations or bubble caps, and second, the head of liquid upon a tray. The most effective head of liquid seems to be from 4 to 6 inches. If this is fixed and the down pipes are made as large as practicable and the maximum number of perforations or bubbler caps are provided, the only other way to increase the capacity of a column is to space the traps further apart. The first columns were frequently built with a 12-inch tray spacing. This has been gradually increased to 15, 18 and even 21 inches. It is possible the economical limit has not yet been reached.

As to the respective merits of perforated plates and bubbler caps, there is a wide difference of opinion. If a column is operated at or near its normal load, perforated plate trays ars entirely satisfactory. For small loads, however, it is claimed that bubbler caps are preferable, since they do not allow the liquid to drop through.

The following examples roughly indicate capacities which may be expected:

Column A—42 inches diameter, bubbler caps, 12-inch spacing, 2¾-inch head of liquid, 150 pounds W.P., primed at 30,000 gallons day.

Column B—42 inches diameter, perforated plates, 16-inch spacing, 4-inch head of liquid, 150 pounds W.P., carried 50,000 gallons day without priming.

Column C—26 inches diameter, perforated plates, 14-inch spacing, 5 to 6-inch head, 190 pounds W.P., carried 9,000 to 26,000 without priming.

Column D—18 inches diameter, perforated plates, 12-inch spacing, 2-inch head, 170 pounds W.P., primed at 17,000 gallons.

CONCRETE TANKS FOR STORAGE OF CRUDE OIL

(Continued from Page 94)

the ease or difficulty with which it is puddled into the forms will determine what changes should be made in the second batch. The most important questions to settle are the relative amounts of the fine and coarse materials and the total amount of aggregate to use with each sack of cement. Since the quantities used in charging the mixer are known, it will be a simple matter to compute the cost of the finished concrete for the various batches if the skip into which the mixer discharges is calibrated to indicate the volume of concrete produced. After several trial batches, using varying proportions of coarse and fine, the most desirable mix can be determined from a consideration of the cost per cubic yard and the degree of workability obtained.

The essential factors in such a series of trials are that the selected water-cement ratio be accurately maintained and that the resulting mixtures are really workable. The experienced concrete man should have no difficulty in selecting the combination most suited to the work at hand, as the requirements of placing almost invariably prevent the use of mixtures that are too harsh. The less experienced man may, in his desire to obtain the greatest possible yield, use a larger proportion of coarse aggregate than is desirable for ease of placing and freedom from honeycombing. This condition should of course be guarded against. It would be well to specify that in no case shall the amount of coarse aggregate be more than twice the amount of fine.

Workability Important

For tank construction, workability is a most important factor. It is one of the factors of the water-cement ratio law, and if a mixture has not workability the law cannot be applied. Concrete may be defined as being plastic and workable when it can be readily molded, but will change its form slowly if the mold is immediately removed. A plastic consistency is between the dry, crumbly consistencies on the one hand, and the very fluid or watery consistencies on the other. A mass that is "plastic" does not crumble. It flows sluggishly and without segregation. In a plastic concrete the aggregate particles are virtually floated in the cement paste. This insures the complete incorporation of all particles and eliminates the possibility of voids or honeycombing between them. If the cement paste is not sufficient in amount to float all of the aggregate particles, the mass is granular or crumbly. It is not mobile and cannot be placed in a solid layer without heavy ramming, and even then may be honeycombed or have unfilled voids. In crude oil tanks this is a condition that must be avoided.

Slump Test

The slump test can be very useful as an indication of consistency, and with certain mixes, also of workability. Consistency should not be confused with workability. For it is a term which embraces the entire range of fluidity from the driest to the wettest mixtures. When a mix has been designed and decided upon, its consistency may be observed and any radical change in subsequent mixing will indicate a change that should be checked up. The slump test cannot distinguish between mixes of a different character. For example, a harsh coarse mix cannot be said to have exactly the same consistency as one with a large proportion of sand even though they have the same slump. In the case of workability it is even more difficult to judge the character of the mix by the slump. However, when the mixes and aggregate remain unchanged, the slump test gives a good measure of any changes in consistency. When the materials are being accurately measured, a change in the slump as the work proceeds indicates either a change in the grading of the materials or a change in water content. The slump test under these conditions can be a good basis for control.

For concrete to be used in circular tank construction, and with the use of well-graded aggregates, the maximum size particles of which would pass in any direction through a 1¼-inch screen, the maximum slump of concrete placed in

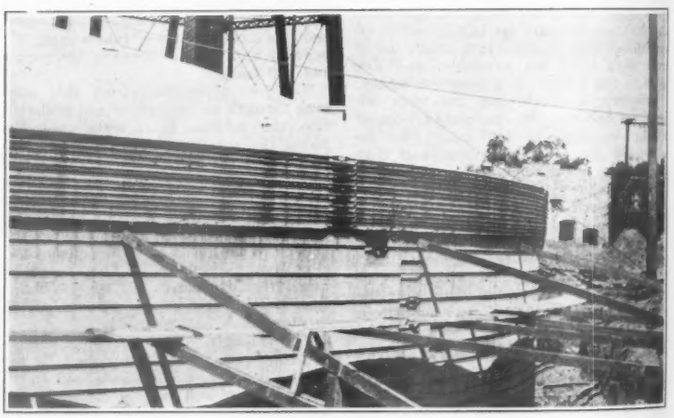

Figure 7—Reinforced concrete tank at El Centro, Calif., showing dome ring and hoops before coating has been applied.

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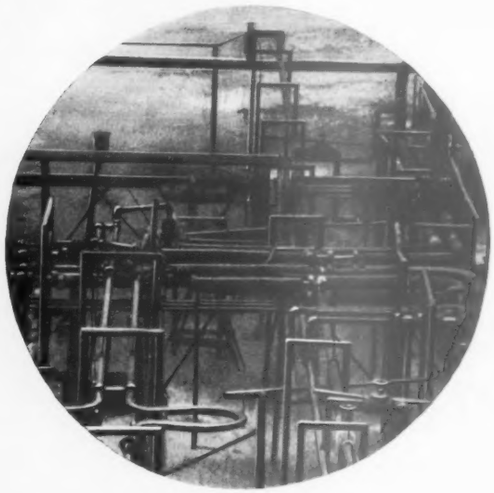

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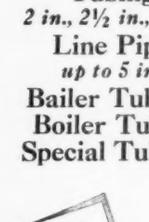

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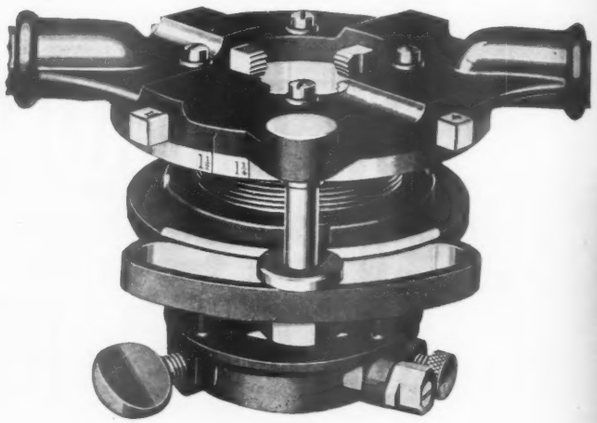

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the bottom or base of the tank should be from 3 to 4 inches. For concrete going into the circular walls of narrow section, the slump should be increased to a maximum of 6 inches.

Making Slump T est

The slump test is made in a mold in the form of a frustum of a cone, 12 inches high, base diameter 8 inches, top diameter 4 inches. This mold is filled with freshly mixed concrete in three layers, each layer being rodded with a five-eighths inch bullet-pointed rod 25 times.

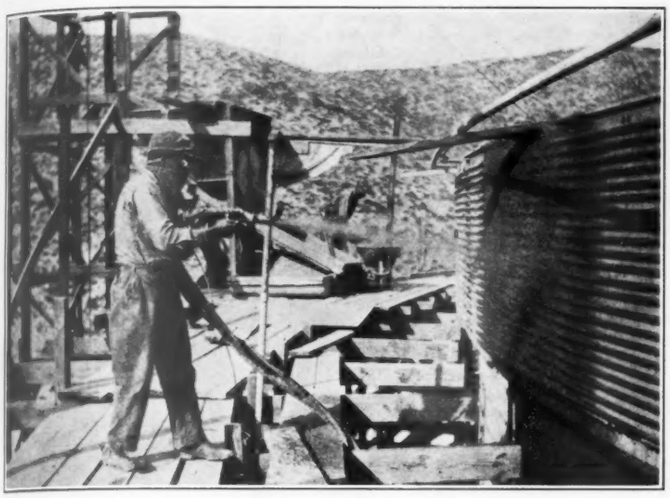

Figure 8—Guniting the dome ring hoops on the 2,300,000-gallon concrete tank shown in Figure 1.

When filled the top is struck off and the mold immediately lifted. The amount which the mass settles as the mold is removed is termed the "slump." A small slump indicates a stiff consistency, and a very large slump a wet consistency. Figure 9 shows the filling of the slump cone and measuring the slump.

Thorough Mixing

The water-cement ratio law says in part:

"For given materials and conditions of manipulation * * * "

An important condition of manipulation is the mixing. Assuming that up-to-date mechanical equipment is employed, the factor, time of mixing, plays an important part in the quality of concrete. Tests show that the strength of concrete is increased by longer periods of mixing. Typical values from these tests indicate that concrete mixed for two minutes will have from 500 to 700 pounds per square inch greater compressive strengths than concrete mixed only 15 seconds.

From the same tests it was found that thorough mixing also makes for more uniform concrete. Furthermore, thorough mixing gives increased workability, which in turn requires less labor in placing and permits the use of larger quantities of aggregate with a given quantity of cement and water in their fixed ratio. A still further advantage of thorough mixing is that it is of great assistance in securing the homogeneity necessary for oil-tight concrete. Small changes in the speed of the mixers are not factors producing greater strength.

Placing Concrete

No element in the entire cycle of concrete production requires more care than the final operation of placing concrete at the ultimate point of deposit. With a well-designed mixture delivered with proper consistency and without segregation, placing of concrete is greatly simplified, but even in this case care must be exercised to further prevent segregation and to see that the material flows readily into the corners and angles of forms and around the reinforcement. Constant supervision is essential to insure such complete filling of the form and to prevent the all-too-common practice of depositing continuously at one point, allowing the material to flow to distant points. Even though the material flows sluggishly and is in every respect of proper homogeneity, flowing over long distances will cause segregation especially of the water and fines from the rest of the mass. In spite of the care exercised all along the line it will happen occasionally that an irregular batch, either too stiff or too fluid or possibly with some segregation, reaches the point of deposit. Under these conditions it is particularly important to have adequate supervision of the placing operation, especially in tank wall construction, where the sections are relatively thin. The concrete should be placed in a continuous layer completely around the tank not over 1 foot thick. When concrete is placed in thick layers, a gradual increase

Figure 9—Rodding concrete for slump test and measuring the slump.

in water content of the upper portion is quite certain to result from the increased pressure on the lower portions. Excess water is to be carefully avoided, but if it does form it should be worked to a low point, without actually causing a flow, and removed. It should be remembered

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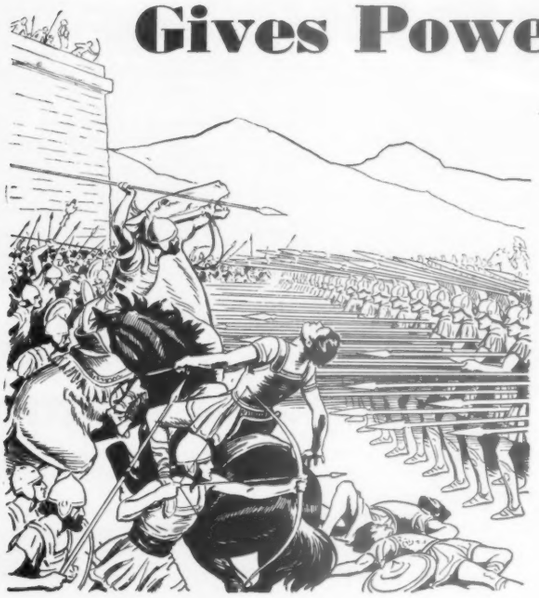

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that excess water in the upper layer is just as objectionable as excess mixing water.

Attention is called to the significance of a layer of laitance on a section of concrete. It has been a common assumption that if this laitance is completely removed all danger has been eliminated. In fact, specifications frequently place considerable stress on its removal. Laitance can only form from the use of excess water, which means that the upper portion of the section will be porous and the removal of a small layer of laitance still leaves several inches of porous concrete through which liquid will pass even under moderate pressure. As has been explained this condition is doubly dangerous in oil tank structures by the large increase in the area for attack of deteriorating substances.

If the walls of an oil tank are constructed in a series of lifts, the top of each section of concrete placed should be thoroughly cleaned before subsequent work is continued. If any evidence of laitance is apparent it should be thoroughly chipped away and the new surface cleaned of all dust and loose material.

The Joint Committee on Standard Specifications for Concrete and Reinforced Concrete recommends that:

"Before depositing new concrete on or against concrete which has set, the forms shall be retightened, the surface of the set concrete shall be roughened, as required by the engineer, thoroughly cleaned of foreign matter and laitance, and saturated with water. The new concrete placed in contact with hardened or partially hardened concrete, shall contain an excess of mortar to insure bond. To insure this excess mortar at the juncture of the hardened and the newly deposited concrete, the cleaned and saturated surfaces of the hardened concrete, including vertical and inclined surfaces, shall first be slushed with a coating of neat cement grout against which the new concrete shall be placed before the grout has attained its initial set."

Too much stress cannot be placed upon the proper care and supervision necessary in handling and placing concrete in the walls of circular oil tanks.

Curing

In making concrete, curing is one of the most important elements in producing oil or water tightness. The continued chemical reaction upon which the increase in strength depends requires the presence of water and favorable temperatures. The term "curing" is used in reference to the continuing of the chemical reactions previously mentioned. In the presence of water and favorable temperatures, curing can proceed. It is through this curing that the internal structure of the concrete is built up to provide strength and liquid tightness. As concrete hardens water continues to enter into combination with the cement; therefore, it is necessary to keep the surface of the hardening concrete moist for a period of at least 10 days, in order that it may develop its potential impermeability and strength. If longer curing time can be maintained, the desired qualities of the concrete will be greatly increased. If at all possible, curing for 28 days will prove to be a great benefit. The problem at hand is to make concrete that will effectively resist the action of sulphate bearing crude oils and oil waters. Adequate curing of properly made and placed concrete will enhance the accomplishment of this purpose, as much or more than any other single factor involved. Specifications should be very definite as to this requirement and strictly and capably enforced.

If the excess water used to produce workability in concrete should be retained in the mass with no loss from evaporation or drying out of the surface or exposed area, there would in all probability be enough moisture present to accomplish the presence of water during the curing period. The surface of the hardened mass should be kept wet by a method that should start immediately after the forms are removed from the side walls. Water should be applied to the bottom of the tank as soon as the concrete is hard enough not to be marred by the process adopted.

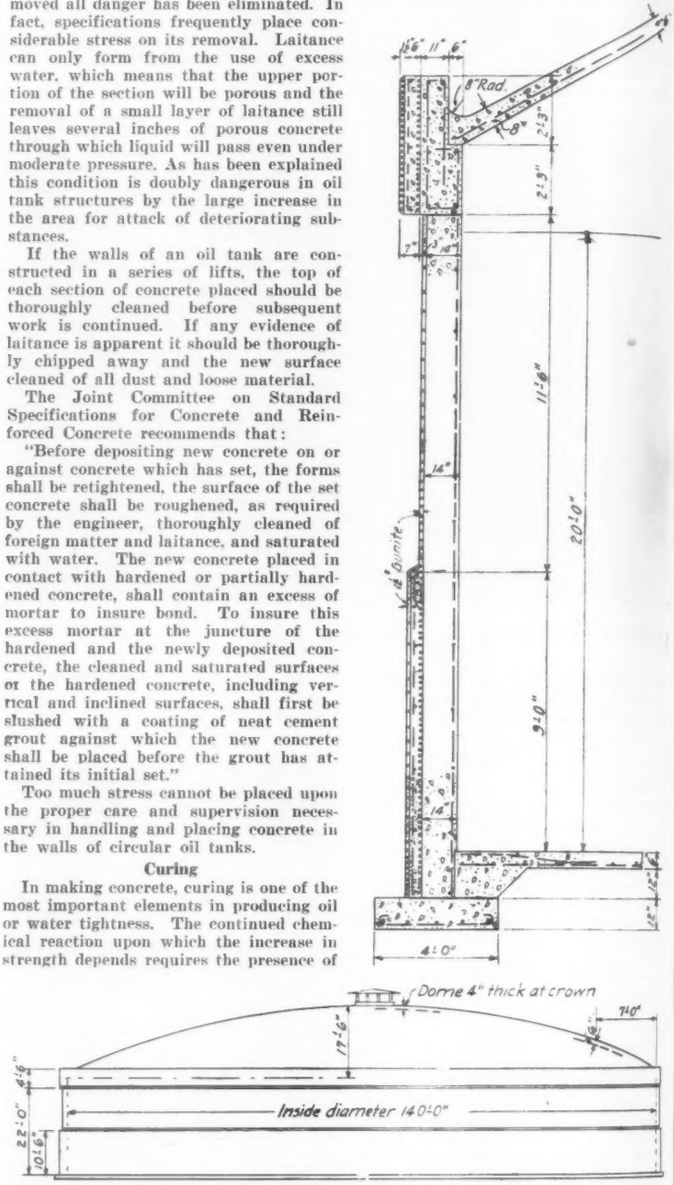

Figure 10—Elevation and typical wall section, 2,300,000-gallon concrete tank with concrete dome top. This tank was designed by W. S. Hewett and constructed in El Paso, Tex.

Methods of Curing

Application of water to the surface of the concrete is the most effective method of curing. In the case of tank walls, an efficient method would be to have small pipe lines that would run completely around both the inside and outside perimeter. These could be suspended from the bottom of the forms immediately after the first lift is made. Small holes or slits in the pipes could be arranged so that the water would wet the entire surface of the newly placed concrete. The water need not run continually but could be periodically turned on so as to keep the surface wet.

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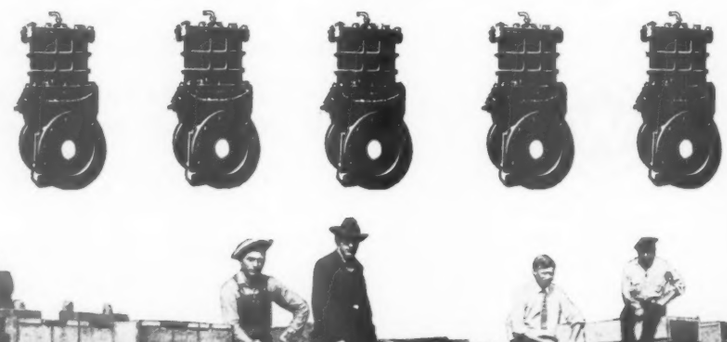

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have merit, particularly for the side walls of the tank where sprinkling with water might be objectionable, is the employment of one of the patented processes of covering the surface of the concrete with a quick drying film which prevents the drying out of the mixing water, and allows curing to proceed with no further application of water to the surface.

One method consists of spraying the surface of the finished concrete with a special bituminous solution, applied immediately after the forms are removed or elevated. The equipment necessary consists of a small compressor driven by a gasoline engine, and a long-handle nozzle. The solution is applied cold and quickly dries into an impervious coating. In the case of tank bottoms, this bituminous coating may be sprayed on the concrete immediately after the final floating and while the concrete is still wet.

From an economic standpoint this method would appear to have merit, for the cost is but a few cents per square yard. It would be well to study the laboratory and field tests, as well as performance records and similar data of any such material or process before its employment as a curing method for concrete used in oil tanks.

It must be remembered, however, that keeping the surface of the concrete wet by inundating or sprinkling with water, is probably the most effective way of curing, and if economically possible should be used in preference to any other method.

If the Hewett method is used in constructing the tank water curing should be resorted to on the outside walls. In this method, the hoops placed on the outside of the tank are subsequently covered with cement plaster or concrete, and if a curing agent other than water has previously been applied to the original wall of the tank it may cause an insufficient or total lack of bond between the wall and the subsequently placed plaster or concrete covering.

Supervision of Construction

The need of engineering supervision is quite evident. Concrete of exacting qualifications is desired. If the practices herein outlined are followed, there will be every reason to expect a satisfactory job. Experience has shown that it is advisable to have someone on the job with authority to say "So much water per sack of cement and no more," and with authority and ability to define workability, and to require adequate curing. Frequently experienced men become so accustomed to an oft-repeated kind of work that it is performed mechanically. Thus concrete is sometimes mixed with too much mixing water, or placed in unworkable condition or not properly cured. Supervision then is an important factor that will more than pay for its cost in better accomplishments.

Outstanding Requirements.

In summarizing the principles discussed in this article, the following are the outstanding requirements to insure success in the construction of reinforced concrete oil storage tanks:

Adequate and efficient structural design:

A specification based on the water-cement ratio law for making concrete, limiting the mixing water to from 5 to 5½ gallons of water per sack of cement, including the water in the aggregate:

The production of a mixture that is workable and plastic:

Careful mixing, placing and adequate curing:

Rigid supervision throughout the entire job:

If these requirements are met, there will be no need for surface treatments of any nature to give impermeability or other desired qualities. Furthermore, the concrete should possess the desired factors of structural strength, oil tightness, durability and resistiveness to the deleterious action of sulphate content oils being produced at this time.

LEGAL

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Call for Bids

To Purchase Government Royalty Oil from SE¼, Sec. 2, T. 22S, R. 17e, M. D. M., Kettleman Hills Oil Field, California (Milham Exploration Company).

Pursuant to the provisions of Section 36 of the act of Congress approved February 25, 1920 (41 Stat., 437), sealed proposals in duplicate will be received in the office of the Secretary of the Interior, Interior Department Building, Washington, D. C., on or before noon of March 1, 1929, from responsible bidders for the purchase for a period of one year beginning April 1, 1929, of royalty oil accruing to the United States (at present from one well) from the SE¼, Sec. 2, T. 22 S., R. 17 E., M.D.M., in the Kettleman Hills Oil Field, California, held by the Milham Exploration Company. The approximate quality of the oil to be sold is indicated by the following results obtained from a laboratory test: gravity, about 59 degrees A.P.I.; 89 per cent gasoline stock (437° F.); 8 per cent kerosene and fuel oil; 3 per cent distillation loss. The Government's royalty oil amounts to approximately 200 barrels a day and will probably suffer gradual decline until additional producing wells are drilled upon the tract. Bids must be based upon the highest posted field price for oil of 25.0 to 25.9 A.P.I. gravity in the Midway-Sunset field, California, and must be stated as a differential in cents per barrel from such posted price. Delivery of royalty oil will be made without cost to the Government on the said SE¼, Sec. 2, for the account of the successful bidder by segregation in royalty tanks or by direct pipe line run as an undivided portion of production as the Government may elect. Payments for the royalty oil are to be made to the Register of the United States Land Office at Sacramento, California, on or before the fifteenth (15th) day of each month following that in which delivery is made, the quantity of the oil to be determined by tank measurement corrected for impurities found by test and the volume computed in terms of standard barrels at 60° F. Each bid must be accompanied by a certified check payable to the order of the Secretary of the Interior, in the sum of $1,000 as a guarantee that the bidder will, if successful, promptly execute a satisfactory contract and furnish a bond in the sum of $40,000 conditioned upon full and complete compliance with the terms of the contract. The Secretary of the Interior may accept any bid which in his judgment is most advantageous to the Government, and reserves the right to reject all bids. Sealed bids are to be submitted to the Secretary, Department of the Interior, Washington, D. C., the envelope to be marked plainly, "Bid on Kettleman Hills royalty oil." No bid received after the time herein fixed for submitted bids will be considered. Additional information can be obtained from the Geological Survey, Department of the Interior, Washington, D. C., or from the field office of the Geological Survey at Taft, California.

(Sgd.) ROY O. WEST,
Secretary of the Interior.

January 24, 1929.

ELIMINATE BAD SALES IN AVIATION PRODUCTS

(Continued from Page 138)

there were no established air transport lines; today there are 39. Then there were only 2,680 miles of airways experimentally operated by the Post Office Department; today there are 16,667 miles operated by private companies flying night and day about 40,000 miles carrying an average of nine tons of mail each calendar day.

The petroleum section has not yet had sufficient time to become thoroughly organized, but most of the preliminary work is out of the way and it is expected that the committee representing oil companies in all parts of the country will come together shortly. While much of the committee's work will be along the lines of aiding in standardization work on airplane fuel and lubricating oil, it will also devote considerable attention to marketing problems.

Leading oil companies are seeking to get their aviation sales departments on a sound working basis, and to get away from the practice of subsidizing special flights. Previously, several of the larger companies have sponsored stunt flights and expeditions, at rather heavy cost, in addition to the furnishing, free, of necessary gasoline and lubricating oils, and have been content to charge these expenditures to advertising.

Now, however, aviation has gotten out of the "stunt" class and has taken its place as part of the country's transportation system. Consumption of fuel and lubricating oil is a growing factor in the business of large refining companies, and the need for a definite code to govern marketing operations in this industry has been realized by refiners. Chairman Shipman is expected to call his committee together in the near future and lay the groundwork for the establishment of such a code.

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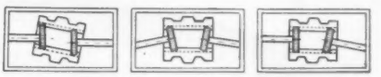

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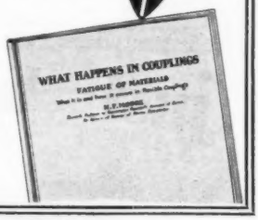

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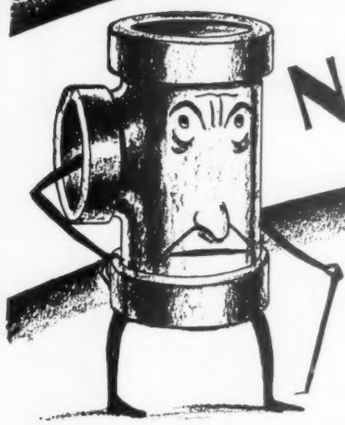

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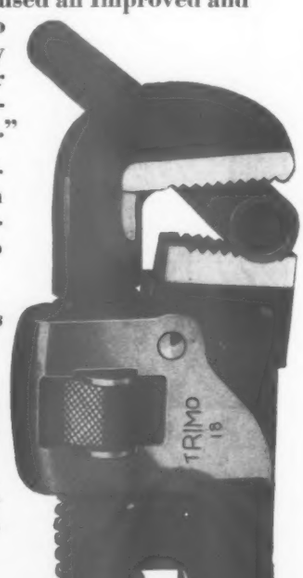

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Barnsdall Oil Co.'s No. 1 M. B. Davis, 330 feet south and east of the NW cor. W half SE, Section 9, Block 1, A.C.H. &B. Survey. Oil Operators Oil Co.'s No. 3 W. Jackson, 330 feet south and 990 feet east of the NW cor. N half NE, Section 88, Block B-2, H.&G.N. Survey.

King County

Huff Oil Co.'s No. 1 Mary A. Martin, 1,320 feet south and west of the NE cor., Section 171, Block F, H.&T. C. Survey.

Moore County

Phillips Petroleum Co.'s No. 4 J. T. Sneed, Jr. (James), 1,600 feet south and 990 feet west of the northwest corner of the J. W. Proctor Survey and located in the M. Robinson Survey.

Wheeler County

Edwards and others' No. 2 T. E. Trostle, at the C NW NW, Section 130, Block 23, H.&G.N. Survey. Gibson Oil Co.'s No. 6 W. E. Bentley, 330 feet south and east of the NW cor. SE SE, Section 42, Block 24, H.&G.N. Survey. H. Vaughn and others' No. 1 E. L. Woodley, at the C NE NE, Section 21, Block 24, H.&G.N. Survey. Mudge Oil Co.'s No. 1 C. Hicks, at the C SW NW, Section 52, Block 17, H.&G.N. Survey. The Texas Company's No. 1 G. C. Gordon, 330 feet north and 405 feet west of the SE cor. NW, Section 91, Block 17, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Gulf Production Co.'s No. 2 H. L. Ward and others, 2,000 feet north and east of the southwest corner of Joseph Tomlinson Survey, A-452. Akin & Rayzor's No. 1 W. T. Finley, 150 feet south and 877 feet west of the northeast corner of the north 43 acres of the east half of the W. T. Finley 266-acre tract out of the Abner Neil Survey, A-325. The Texas Company's No. 1 J. R. Parkey, 2,280 feet south and 1,320 feet west of the northeast corner of Lot 2, Section 1, A.T.N.C.L. Survey. W. C. Young and others' No. 1 American Refining Co. properties, 150 feet north and 1,491.5 feet west of the SE cor., Section 135, Club Ranch Subdivision. C. U. Beasley's No. 1 Abercrombie & Taylor, 150 feet north and 450 feet west of the SE cor. SW, Section 41, Club Ranch Subdivision. H. Donohoo and others' No. 4 W. L. Andrews, 150 feet north and 450 feet east of the southwest corner of the north 80 acres of the E half, Section 1,826, T.E.&L. Survey. T. Harris and others' No. 2 John E. Roller estate, 150 feet south and 750 feet east of the northwest corner of the W. G. Watts Survey, A-1,115. Humble Oil & Refining Co.'s No. 1 A. M. Kunkel and others, 150 feet south and west of the NE cor., Section 3, B.B.B.&C. Survey. H. M. Kelleher and others' No. 1 J. C. King, 1,144 feet north and 1,168 feet west of the SE cor., Section 2,422, T.E.&L. Survey. Perkins & Cullum's No. 3 Mrs. G. Williams, 150 feet north and 750 feet west of the southeast corner of the north 40 acres of the south 80 acres of the John I. Hand Survey, A-182. Prairie Oil & Gas Co.'s No. 25 J. T. Richardson "B," 150 feet south and 450 feet east of the northwest corner of their Lease "B," out of Section 1, South Anderson Ranch Subdivision.

Herring & Anderson's No. 1 T. M. Edmondson, 480 feet north and 150 feet east of the southwest corner of the T. Townsend Survey, A-923. Humble Oil & Refining Co.'s No. 20 Roy Hickman, 200 feet north and 1,030 feet east of the southwest corner of their lease out of the Thomas Benson Survey No. 783. Young Brothers-Alexander and Woodley Petroleum Co.'s No. 8 J. S. Armstrong, 1,650 feet north and 750 feet east of the most southerly southwest corner of the J. S. Armstrong 231.5-acre tract out of the P. Curlong Survey, No. 151. Same companies' No. 21 Roy Hickman, 750 feet south and east of the northwest corner of their 80-acre lease out of the Thomas Benson Survey, No. 783. Amerada Petroleum Corp.'s No. 3 Mrs. W. R. Guthrie, 2,503 feet southeast of the northwest line and 6,207 feet northeast of the southwest line of the W. R. Guthrie 707-acre tract out of the A. Arrocha Survey, No. 205. J. H. Green's No. 3 W. L. Hill, 150 feet south and 750 feet east of the northwest corner of the S. P. Walker Survey, A-992. H. Gutzman's No. 9 L. J. Stanley, 1,650 feet east of the Fort Worth & Rio Grande right of way and 750 feet north of the south line of the L. J. Stanley 320-acre tract out of the Hrs. W. A. Smith Survey, No. 139. Lloyd Oil Corp.'s No. 15 J. C. Collier, 1,710 feet east of the Fort Worth & Rio Grande right of way and 450 feet south of the north line of the J. C. Collier 320-acre tract out of the Hrs. W. A. Smith Survey, No. 139. Same company's No. 16 J. C. Collier, 2,010 feet east of the Fort Worth & Rio Grande right of way and 450 feet south of the north line of the J. C. Collier 320-acre tract out of the Hrs. W. A. Smith Survey, No. 139.

Callahan County

Grass Roots Oil Co.'s No. 7 G. W. Klutts, 150 feet south and 750 feet east of the NW cor., Section 43, Comal County School Land. Moutray Oil Co.'s No. 11 P. G. Hatchett, 150 feet north and 710 feet west of the SE cor. NW NW, Section 29, Deaf and Dumb Asylum Land. Same company's No. 12 P. G. Hatchett, 450 feet north and 710 feet west of the SE cor. NW NW, Section 29, Deaf and Dumb Asylum Land. Reiter-Foster Oil Corp.'s No. 18 P. G. Hatchett, 676 feet north and 345 feet west of the SE cor. SE SW, Section 24, Deaf and Dumb Asylum Land. Same company's No. 20 P. G. Hatchett, 410 feet south and west of the NE cor. SE SW, Section 24, Deaf and Dumb Asylum Land. The Texas Company's No. 1 R. D. Williams, 143 feet south and 150 feet east of the NW cor. SW SE, Section 24, Deaf and Dumb Asylum Land.

Coleman County

Texas Fidelity Oil Co. and others' No. 1 Mrs. C. H. White, 150 feet north and east of the southwest corner of the east 89.5 acres of the N. W. Slayton Survey, No. 183. Tower & McKanna's No. 1 W. W. Holmes, 450 feet south and 150 feet east of the northwest corner of the W. W. Holmes 147-acre tract out of the A. Quigley Survey, No. 739. Foster & Amsler's No. 1 L. C. Haas, 150 feet north of the south line and 150 feet southeast of the northwest line of the north 20 acres of the L. C. Haas 122.9-acre tract out of Section 71, Block 1, G.H.&H. Survey. F. Harris' No. 1 G. A. Jones, 6,094 feet south and 660 feet east of the northwest corner of the L. Julienne Survey, No. 196. Humphrey Brothers and others' No. 5 J. P. Mathews, 940 feet north and 150 feet east of the southwest corner of the C. Raquet Survey, No. 43. Midland Oil Co.'s No. 1 C. L. Curry, 150 feet south and 2,003 feet west of the northeast corner of the H. Rhodes Survey, No. 631.

Concho County

Duffy & Silk's No. 1 T. Y. Hill, 150 feet north and east of the SW cor., Section 8, Block 70, H.&T.C. Survey. Same company's No. 1 Lovelace & Lockett, 1,056 feet north and 640 feet west of the SE cor., Section 66, Block 70, H.&T.C. Survey. Same company's No. 1 J. A. Noyes, at the C SE, Section 19, Block 70, H.&T.C. Survey.

Howard County

American Maracaibo Co.'s No. 4 W. R. Settles "C," 1,373 feet south and 3,023 feet east of the NW cor., Section 6, Block 32, T-2-S. Bristow & Merrick's No. 10 A. H. Hooks, 660 feet south and 2,440 feet east of the NW cor., Section 140, Block 29, W.&N.W.R.R. Survey.

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The Oil and Gas Journal
Classified Wants Department

Coyle-Concord Oil Co.'s No. 6 Dora Roberts, 1,650 feet south and 150 feet west of the NE cor., Section 156, Block 29, W.&N.W.R.R. Survey. Group 1 Oil Co. and Marland Production Co.'s No. 5 W. R. Settles, 2,310 feet south and 330 feet east of the NW cor., Section 133, Block 29, W.&N.W.R.R. Survey. Same company's No. 6 W. R. Settles, 2,310 feet north and 330 feet east of the SW cor., Section 133, Block 29, W.&N.W.R.R. Survey. Howard County Oil Corp.'s No. 1-A Kloh and others, 990 feet south and east of the NW cor., Section 5, Block 32, T-2-S, T.&P. Survey. Marland Production Co.'s No. 3 H. R. Clay "F," 250 feet south and 660 feet west of the NE cor., Section 138, Block 29, W.&N.W.R.R. Survey. Midwest Exploration Co.'s No. 2 H. R. Clay "C," 330 feet north and 1,650 feet west of the SE cor., Section 138, Block 29, W.&N.W.R.R. Survey. Moody Oil Corp.'s No. 13 Dora Roberts, 2,310 feet south and 2,260 feet east of the NW cor., Section 137, Block 29, W.&N.W.R.R. Survey. Pure Oil Co.'s No. 10 Otis Chalk, 330 feet north and 990 feet west of the SE cor., Section 125, Block 29, W.&N.W.R.R. Survey. Schermerhorn Oil Co.'s No. 4 Dora Roberts "A," 2,304 feet south and 2,306 feet west of the NE cor., Section 137, Block 29, W.&N.W.R.R. Survey.

Eastland County

Barkley & Crotty's No. 1 H. D. Browning, 1,100 feet north and 200 feet east of the southwest corner of the J. A. Weeks Survey.

Garza County

Emerald Oil Co.'s No. 4 J. M. Boren, 330 feet south and west of the NE cor., Section 136, Block 5, H.&G.N. Survey.

Jack County

Panhandle Refining Co.'s No. 1 J. M. Dougherty (Morrissey) "A," 300 feet north and west of the southeast corner of the west 143 acres of the J. M. Dougherty 227-acre tract out of the Isaac Hughson Survey, A-256. Petroleum Producers Co. and The Texas Company's No. 1 H. C. Shanafelt, 330 feet south and west of the northwest corner of the G. L. Jones 90-acre tract out of the Isaac Hughson Survey, A-256, being 330 feet south and west of the most northerly northeast corner of their 102.19-acre lease. Prairie Oil & Gas Co.'s No. 2 Mary A. Bryson, 330 feet north and 910 feet west of the southeast corner of the west 120 acres of the M. A. Bryson 273-acre tract out of the Isaac Hughson Survey, A-256.

McCulloch County

Haggerty and others' No. 2 J. K. Shelton, 3,200 feet north and 1,750 feet east of the SW cor., Section 155, H.&T. C. Survey.

Pecos County

Gulf Production Co.'s No. 16 M. A. Smith and others, tract "B," 990 feet south and 990 feet east of the NW cor., Section 22, Block 194, G.C.&S.F. Survey. Mid-Kansas Oil & Gas Co.'s No. 8 I. G. Yates "H," 797 feet north and 3,528 feet east of the SW cor., Section 32, Block 194, G.C.&S.F. Survey. Phillips Petroleum Co.'s No. 1 I. M. Ramsey, 990 feet south and west of the NE cor., Section 17, Block 194, G.C.&S.F. Survey.

Shackelford County

Cranfill & Reynolds' No. 1 Diller Brothers, 2,422 feet south and 2,627 feet east of the NW cor., Section 5, Block 10, E.T.R.R. Survey. Midsun Oil Corp.'s No. 3 J. H. Nail, 660 feet north and east of the SW cor. SW, Section 102, Block 10, E.T.R.R. Survey. Morrison Oil Co.'s No. 1 J. H. Nail, 1,465 feet north and 1,320 feet east of the SE cor., Section 24, Block 10, E.T.R.R. Survey, and located in the J. A. Brook Survey. Roeser & Pendleton's No. 87 W. I. Cook "A," Section 60, 847 feet south and 150 feet east of the NW cor. SW, Section 60, Block 10, E.T.R.R. Survey. Same company's No. 10 W. I. Cook "B," Section 61, 150 feet south and 527 feet west of the NE cor. SW SW, Section 61, Block 10, E.T.R.R. Survey. Same company's No. 5 W. I. Cook "A," Section 83, 415 feet south and 635 feet west of the NE cor. SE, Section 83, Block 10, E.T.R.R. Survey. Same company's No. 6 W. I. Cook "A," Section 83, 830 feet south and 635 feet west of the NE cor. SE, Section 83, Block 10, E.T.R.R. Survey.

Taylor County

L. H. Wentz's No. 1 R. L. Armour, 375 feet north and 330 feet west of the SE cor. W half, Section 16, Block 0, S.P.R.R. Survey.

Upton County

Wentz Oil Co.'s No. 5 Milton Shirl, 2,310 feet north and 1,650 feet west of the SE cor., Section 35, Block 1, M.E. &T. Survey.

Wichita County

J. Cable and others' No. 1 H. B. Hines, 2,875 feet north and 394 feet east of the SW cor., Section 11, H&G.N. Survey, A-147. R. R. Clark's No. 4 P. P. Langford and others "A," 150 feet south and 810 feet east of the northwest corner of the P. P. Langford and others 357-acre tract out of Section 6, G.C.& S.F. Survey, A-734. Comac Oil Co. and Prairie Oil & Gas Co.'s No. 4 M. P. Bishop, 450 feet south and west of the northeast corner of their lease out of the L. Netherly Survey, A-240. Hamon & Garrett's No. 1 J. F. Miller, north 70 degrees east 702 feet from the southeast corner of the Sam O. Fowler Survey, A-78, and located in the W. R. Eaves Survey, A-447. Humble Oil & Refining Co.'s No. 11 W. H. Taylor, 454 feet south and 450 feet west of the northeast corner of Block 81, Kemp Wichita Valley Land. Same company's No. 12 W. H. Taylor, 150 feet north and 450 feet west of the southeast corner of Block 81, Kemp Wichita Valley Land. Same company's No. 13 W. H. Taylor, 150 feet south and 750 feet west of the northeast corner of Block 81, Kemp Wichita Valley Land. Panhandle Refining Co. and Hines' No. 5 T. L. Burnett and others, 450 feet north and 150 feet west of the SE cor. S half SW, Section 0, S.A.&M.G. Survey. Shappell Oil Co.'s No. 10 S. H. McCarty "A," 200 feet south and 600 feet west of the northeast corner of their lease "A," out of the W. R. Eaves Survey, A-447. Shell Petroleum Corp.'s No. 3 L. C. Denny, 2,600 feet north and 150 feet west of the southeast corner of the L. C. Denny 500-acre tract out of the H. B. Balch Survey, A-12. Shell Petroleum Corp.'s No. 4 L. C. Denny, 2,300 feet north and 450 feet west of the southeast corner of the L. C. Denny 500-acre tract out of the H. B. Balch Survey, A-12. Staley & Wynne's No. 13 Kemp & Kempner, 150 feet south and 450 feet west of the southeast corner of Block 81, Kemp Wichita Valley Land, and located in Block 82. United Production Co.'s No. 3 Allen & Kemp, 150 feet north and 750 feet west of the southeast corner of Block 44, Kemp Wichita Valley Land.

Wilbarger County

Golding-Cochran and others' No. 3 W. T. Waggoner "H," 150 feet north and 450 feet east of the southwest corner of the east 30 acres of the NE SE, Section 32, Block 4, H.&T.C. Survey. Lewis & Payne's No. 1 W. T. Waggoner, 660 feet south and 200 feet west of the NE cor. SE SW, Section 17, Block 4, H.&T.C. Survey. Prairie Oil & Gas Co.'s No. 11 W. T. Waggoner "A," 551 feet south and 461 feet east of the NW cor. SW NE, Section 45, Block 4, H&T.C. Survey. Same company's No. 8 W. T. Waggoner "B," 1,238 feet south and 546 feet east of the NW cor. SW, Section 43, Block 4, H&T.C. Survey. Shaw Oil Co.'s No. 4 W. T. Waggoner "E," 150 feet north and 490 feet east of the SW cor. S half SE NE, Section 18, Block 4, H.&T.C. Survey. Same company's No. 5 W. T. Waggoner "E," 150 feet south and 830 feet east of the NW cor. of the south half of the SE of the NE of Section 18, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 1 W. T. Waggoner "L," 150 feet north and west of the SE cor. of the west 10 acres of the NE of the SE of Section 32, Block 4, H.&T.C. Survey.

Winkler County

Gulf Production Co.'s No. 4 E. W. Cowden, 495 feet north and 330 feet east of the SW cor. of Gulf Production Co.'s 240-acre lease out of Section 3, Block 12-B, School Land. Humble Oil & Refining Co.'s No. 4 T. G. Hendrick "C"

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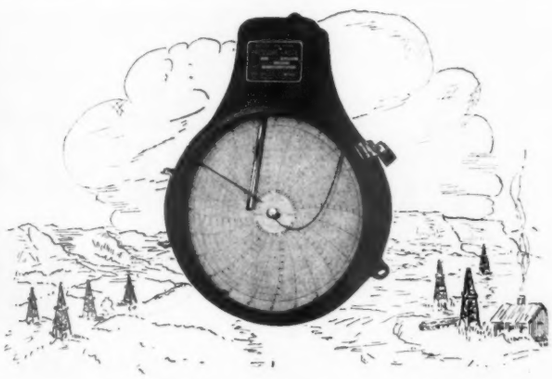

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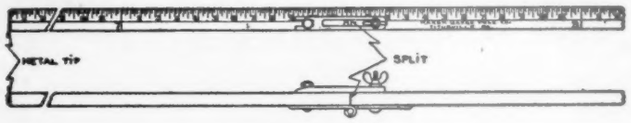

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Skelly Oil Co.'s No. 1 Tobe Morton, 2,310 feet north and 1,650 feet west of the SE cor. of Section 27, Block 12-B, School Land. Southern Crude Oil Purchasing Co.'s No. 6 Ida Hendricks T-88-D, 440 feet north and 1,320 feet west of the SE cor. of Section 4, Block 12-B, School Land. Same company's No. 3 T. G. Hendricks T-89-J, 2,200 feet north and 330 feet west of the SE cor. of Section 9, Block 12-B, School Land. Texon Oil & Land Co.'s No. 6 Grisham-Hunter "B," 1,320 feet north and 990 feet east of the SW cor. of Section 45, Block 26, School Land.

Young County

Holbrook & Wood's No. 4 S. E. Watson "A," 450 feet south and 750 feet west of the NE cor. SE, Section 22. Young County School Land, A-1,284. A. W. Johnston's No. 2 J. R. Garvey, 1,232 feet north and 450 feet east of the SW cor., Section 1,857, T.E.&L. Survey. Pennell Oil Co.'s No. 3 C. W. Johnson "D," 150 feet north and east of the southwest corner of Lot 4, Edward W. Sergeant Survey, A-253. Same company's No. 1 A. Williams, 150 feet south and 870 feet west of the northeast corner of the W. C. Adams Survey, A-1,364. Panhandle Refining Co. and others' No. 12 H. O. Prideaux-"C," 150 feet north and 450 feet east of the southwest corner of their 105-acre lease "C" out of the A. Rohus Survey, A-240. Prairie Oil & Gas Co. and others' No. 6 R. Campbell, 900 feet south and 2,100 feet west of the NE cor., Section 1,370, T.E.&L. Survey. Prairie Oil & Gas Co.'s No. 6 C. F. Kunkel, 1,165 feet north and 750 feet east of the SW cor. SE, Section 4, B.B.B.& C. Survey, A-1,701. M. L. Richards and others' No. 2 R. Campbell "A," 150 feet north and 350 feet east of the SW cor., Section 1,389, T.E.&L. Survey. Underwood Drilling Co. and others' No. 5 R. Campbell, 1,000 feet south and 200 feet east of the NW cor., Section 1,390, T. E.&L. Survey. C. C. Williams' No. 1 S. Bagley, 150 feet southeast of the northwest line and 450 feet northeast of the southwest line of the P. Averett Survey, A-2. Wise & Jackson and others' No. 4 R. J. Calvin, 150 feet south and 1,150 feet east of the northwest corner of the R. J. Calvin 200-acre tract out of the A. Rohus Survey, A-240.

Corrections

In Brown County: Williamson and others' No. 5 R. L. Eddington, 900 feet south and 600 feet east of the northwest corner of the R. L. Eddington 512-acre tract out of the Robert Mitchell Survey, No. 141.

In Fannin County: Scrivner & Honea's No. 1 J. A. Griffis, 4,427 feet north and 300 feet east of the southwest corner of the John A. Windle Survey, A-1,147, being 600 feet south and 300 feet east of the northwest corner of the J. A. Griffis 75-acre tract.

In Montague County: Harris & Simons' No. 5 J. W. Maddox, 200 feet south and 200 feet east of the northwest corner of their 30-acre lease out of John Chambliss Survey, A-123.

In Shackelford County: E. R. Tennent and others' No. 1 J. B. Matthews, 1,020 feet north and 1,110 feet east of the SW cor. of Section 56, Block 10, E.T.R.R. Survey.

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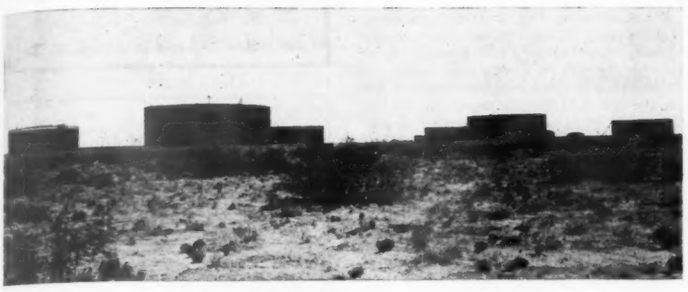

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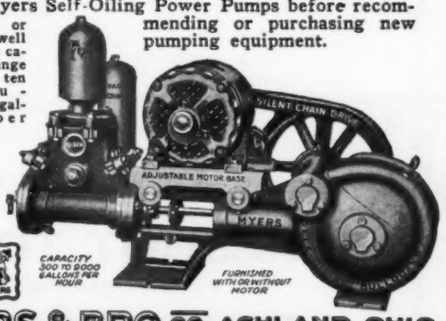

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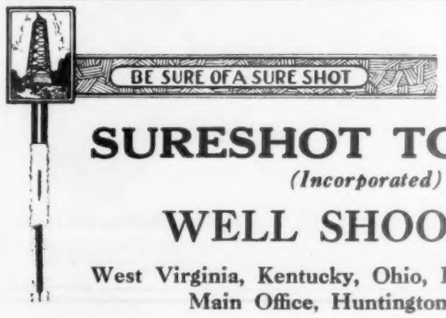

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Recent Patents

INTRODUCE GAS

1,696,030. Process for Treating Petroleum Oils. Walter M. Cross, Kansas City, Mo., assignor, by mesne assignments, to Gasoline Products Co., Inc., Wilmington, Del., a corporation of Delaware. Filed October 14, 1922. Serial No. 594,493. 5 Claims. (Cl. 196—65.)

1. A process for treating petroleum oil consisting in raising the oil to a conversion temperature in a heating stage, passing the oil to a reacting stage and maintaining a pressure from 400 to 750 pounds per square inch upon the heating and reacting stages, introducing a combustion supporting gas to the reacting stage to raise the temperature therein in excess of the temperature in the heating stage, passing the converted product from the reacting stage to a distillation stage maintained under reduced pressure, refluxing the evolved vapors in separate stages of dephlegmation and collecting the separated products.

RESOLVE TAR EMULSIONS

1,696,057. Process for Resolving Emulsions of Tar or Tar Oils. Herbert William Robinson, Birmingham, and Deric William Parkes, West Bromwich, England. Filed September 15, 1927. Serial No. 219,802, and in Great Britain December 24, 1926. 6 Claims. (Cl. 196—4.)

1. The method of resolving an emulsion of tar oils which consists in rendering the emulsion faintly acid, adding thereto a quantity, greater than 10 per cent by weight of the oleaginous phase, of a solid hydrocarbon soluble in the oleaginous phase of the emulsion and having a melting point below 100 degrees Centigrade, heating the mixture thus formed above the melting point of said hydrocarbon, rapidly cooling said mixture to precipitate said hydrocarbon in a finely divided state, and settling out the water from the resulting stiff agglomerate of said oleaginous phase and sand hydrocarbon.

6. In a process of resolving an emulsion of tar oils containing a quantity of naphthalene in solid form greater than 10 per cent by weight of the oleaginous phase, the steps which consist in bringing the naphthalene in a finely divided state into intimate contact with the emulsion, and settling out the water from the resulting stiff agglomerate of said oleaginous phase and said naphthalene.

VAPOR AIDS DISTILLATION

1,694,259. Method of Distilling Petroleum. Henry H. Hewetson, Elizabeth, N. J., assignor to Standard Oil Development Co., a corporation of Delaware. Filed June 18, 1923. Serial No. 646,005. 1 Claim. (Cl. 196—106.)

The method of continuously distilling petroleum which comprises maintaining a series of bodies of petroleum at successively higher temperatures, conducting away and condensing the vapors so formed, maintaining a continuously flowing stream of petroleum from each body to that at the next higher temperature, each stream having a down-flowing and up-flowing section, introducing into said stream a quantity of a liquid having a boiling point lower than the temperature of the stream, to produce by vaporization a gas or vapor in the form of bubbles commingled with the liquid in the up-flowing section.

1,677,440. Process of Treating Petroleums. Wright W. Gary, Los Angeles, Calif., assignor of one-half to Charles O. Middleton, Los Angeles, Calif. Filed June 7, 1926. Serial No. 114,078. 7 Claims. (Cl. 196—42.)

1. The process of treating petroleum, comprising, passing therethrough sulphuric anhydride maintained in a dry and gaseous state.

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MARACAIBO

The Oil and Gas Journal,
Tulsa, Okla.

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Twenty-six drillers 56 kilometers back in the woods from Maracaibo and not a darn calendar on the lease. Any old calendar that's got all the dates on it will be appreciated by the bunch. Here is a good chance for oil well supply men to make a hit with the bunch.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for November

Runs

Company	Month bbls.	Dly. av. bbls.
*Prairie P. L. Co.	4,500,000	150,000
Gulf P. L. Co.	1,471,222	49,041
Texas P. L. Co.	884,473	29,482
Magnolia P. L. Co.	2,120,315	70,677
Empire P. L. Co.	1,236,637	41,221
Cosden P. L. Co.	879,810	29,327
Sinclair P. L. Co.	3,210,000	107,000
Oklahoma P. L. Co.	3,130,325	104,344
Other lines	7,620,000	254,000
Total November	25,053,782	835,092
Total October	26,493,940	854,835
Difference	1,447,158	19,743

Shipments

†Prairie P. L. Co.	5,461,567	182,052
Gulf P. L. Co.	1,594,937	53,165
Texas P. L. Co.	1,111,436	37,048
Magnolia Pet. Co.	1,995,306	66,510
Empire P. L. Co.	1,035,159	34,506
Cosden P. L. Co.	874,967	29,162
†Sinclair P. L. Co.	3,211,711	107,057
Oklahoma P. L. Co.	3,174,464	105,815
Other lines	7,350,000	245,000
Total November	25,809,577	860,315
Total October	27,333,903	881,735
Difference	1,524,326	21,420

Stocks

	Bbls.
Prairie O. & G. Co.	31,837,000
Prairie P. L. Co.	2,750,000
Gulf P. L. and Gypsy Oil Cos.	10,112,313
The Texas Company	6,762,931
Magnolia Pet. Co.	9,265,632
Empire P. L. Co.	3,875,959
Mid-Continent Pet. Corp.	3,593,914
Sinclair Crude Oil Pur. Co.	20,623,000
Carter Oil Co.	12,128,602
Oklahoma P. L. Co.	3,875,959
Other lines	11,700,000
Total November	116,225,310
Total October	115,173,801
Difference	1,051,509

*Estimated. †Prairie P. L. and Sinclair P. L. shipments include Texas crude oil.

Note—Stocks do not include approximately 8,200,000 bbls. of crude oil held in storage on private tank farms and leases and approximately 210,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma.

EASTERN PIPE LINE REPORT

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov.,'28	Dec.,'28
Nat. Transit	149,632.58	145,961.90
S. W. Pa. P. L.	88,351.54	90,632.07
Eureka P. L.	340,150.08	334,400.38
Buckeye P. L. (Macksburg)	324,323.38	321,746.10
Buckeye P. L. (Cleveland)	9,969.20	11,670.01
Buckeye P. L. (Lima, etc.)	95,741.92	102,544.02
Indiana P. L.	5,045.26	5,869.25
Cumberland P. L.	200,252.82	198,838.68
N. Y. Transit	26,096.56	26,551.67
Tidewater P. L.	213,822.88	222,437.71
Pure Oil	63,222.62	58,921.42
Emery P. L.	59,915.74	62,842.83
Paragon Dev.	21,545.52	21,324.31
Stoll Oil Ref.	8,888.14	9,023.98
Total	1,606,958.54	1,612,774.33
Daily average	53,565.15	52,024.98

Note—Indian Refining Co. also reported other receipts of 247,724.51 bbls. Paragon Refining Co. had other receipts of 194,077.16 bbls. Paragon Development had other receipts of 482.14 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio and Kentucky for November and December:

	Nov.,'28	Dec.,'28
Nat. Transit	581,552.73	565,441.11
S. W. Pa. P. L.	453,348.05	472,797.78
Eureka P. L.	233,597.31	218,228.06
Buckeye P. L. (Macksburg)	104,175.67	163,839.57
Buckeye P. L. (Cleveland)	1,942.41	2,189.40
Buckeye P. L. (Lima, etc.)	1,432,776.49	1,389,409.84
Indiana P. L.	1,380,185.20	1,426,068.91
Cumberland P. L.	182,624.70	215,190.79
Southern P. L.	.....	39,859.78
N. Y. Transit	232,023.71	189,477.21
Northern P. L.	240,489.16	173,728.49
Tidewater P. L.	181,613.37	184,601.11
Pure Oil	63,566.49	62,743.21
Emery P. L.	59,668.28	60,747.88
Indian Ref.	159,377.75	195,558.59
Paragon Dev.	.....	21,911.78
Total	5,306,941.28	5,381,735.51
Daily average	176,898.04	173,572.06

Indian Refining Co. reported other deliveries of 339,546.09 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of November and December:

	Nov.,'28	Dec.,'28
Nat. Transit	937,788.09	863,001.46
S. W. Pa. P. L.	548,202.29	429,283.61
Eureka P. L.	1,119,157.14	1,166,151.69
Buckeye P. L. (Macksburg)	565,202.83	558,828.02
Buckeye P. L. (Cleveland)	29,807.45	33,233.02
Buckeye P. L. (Lima, etc.)	2,745,636.88	2,326,759.46
Indiana P. L.	542,471.12	503,036.50
Cumberland P. L.	520,634.29	504,540.79
Southern P. L.	374,083.37	380,167.89
N. Y. Transit	403,009.35	307,858.74
Northern P. L.	381,904.17	367,722.48
Pure Oil	14,711.72	11,641.89
Emery P. L.	12,163.12	13,422.06
Paragon Ref.	22,875.49	21,092.45
Indian Ref.	142,492.29	46,060.23
Paragon Dev.	6,413.78	6,754.88
Total	8,366,553.38	7,539,555.17
Decrease	863,155.73	826,998.21

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of November and December, showing the gross stocks of the above fields:

	Nov.,'28	Dec.,'28
Pennsylvania	3,045,588.44	2,927,780.85
Lima	793,424.06	734,379.46
Kentucky	767,197.74	722,193.76
Mid-Continent	3,605,501.13	3,118,706.55
Illinois	154,842.01	36,469.55
Total	8,366,553.38	7,539,555.17

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1925	1926	1927	1928
January	56,831	55,630	56,209	52,904
February	60,606	60,394	61,298	57,002
March	60,575	61,644	63,247	57,485
April	63,062	63,019	60,337	56,812
May	59,217	60,580	60,284	52,067
June	61,270	61,131	62,757	58,220
July	62,639	63,206	58,674	57,144
August	69,686	61,815	60,870	57,745
September	62,510	64,639	60,285	53,487
October	145,388	161,132	147,036	58,100
November	59,350	61,774	57,275	53,565
December	57,974	58,755	53,089	52,025

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1925	1926	1927	1928
January	157,889	156,056	141,227	146,465
February	160,863	159,488	138,534	167,368
March	154,591	150,239	133,777	158,883
April	151,429	152,371	140,227	172,935
May	146,995	160,998	144,594	180,559
June	149,467	160,257	149,772	188,034
July	161,338	160,045	151,850	189,470
August	161,730	151,929	188,653	192,853
September	156,719	158,915	144,213	194,138
October	145,388	161,132	147,036	176,000
November	143,582	152,608	150,975	176,898
December	150,163	136,438	144,504	173,572

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines at the close of each month for the past three years:

	1926	1927	1928
January	9,859,170	9,718,008	12,276,7
February	9,579,354	10,119,162	12,180,4
March	9,438,292	10,794,044	12,329,7
April	9,805,851	11,112,295	11,746,1
May	9,531,757	11,359,381	11,609,1
June	9,585,904	11,493,673	11,287,4
July	9,734,687	11,458,128	10,818,1
August	9,058,947	11,989,115	10,236,1
Septemebr	9,436,732	12,212,716	9,966,1
October	9,269,806	12,047,661	9,329,7
November	9,257,067	11,939,740	8,966,1
December	9,454,512	12,340,297	7,539,1

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Runs	Shipments	Stocks
1927—			
November	2,746.50	2,220.52	21,473.5
December	2,779.86	1,803.69	22,868.7
1928—			
January	1,886.06	2,424.79	21,813.9
February	2,460.14	3,109.34	21,170.7
March	2,578.86	3,540.33	20,209.2
June	3,153.08	2,779.02	17,993.5
July	2,902.50	3,628.02	17,197.9
August	2,874.11	2,350.13	17,721.9
September	2,820.31	5,255.42	15,286.8
October	1,259.93	532.89	17,651.8
November	2,662.52	782.47	19,434.9

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, January 1	2,288,863.4
Runs from wells	558,361.3
Other receipts	403,606.9
Regular deliveries	403,071.3
Other deliveries	364,443.9

The amount of Illinois oil run by the Tidewater Pipe Co. in December was 20,771.14 bbls. Deliveries were 28,446.91 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1927—		
November	605,621.14	415,186.9
December	577,321.35	397,176.9
1928—		
January	561,759.57	434,147.9
February	573,619.78	456,211.9
March	725,250.32	520,598.9
April	526,013.13	448,282.4
May	632,968.64	522,966.5
June	608,552.49	625,097.3
July	612,286.49	566,673.2
August	639,074.85	671,564.1
September	570,307.91	737,295.9
October	626,147.64	636,594.4
November	576,332.88	702,598.9

Tidewater Pipe Co., Ltd., also delivered in December 85,055.56 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans	Port Arthur	Baton Rouge	Sabine Pass	Tampa	Total	Total all ports
June	11,800	.....	33,367	19,700	9,000	63,567	.....	.....	.....	.....	.....	.....	.....	63,567
July	19,807	2,903	8,774	20,419	2,452	54,355	.....	.....	.....	.....	.....	.....	.....	54,355
August	18,161	3,613	27,774	17,677	2,419	69,644	.....	.....	.....	.....	.....	806	806	70,451
September	11,100	.....	18,967	35,200	6,700	74,967	.....	.....	.....	.....	.....	.....	.....	74,967
October	17,322	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....	.....	.....	35,612
November	21,333	5,200	25,400	18,200	7,100	77,233	.....	.....	.....	.....	.....	1,000	1,000	78,233

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans	Port Arthur	Baton Rouge	Sabine Pass	Tampa	Total	Total all ports
June	24,900	12,233	119,867	41,667	19,300	217,967	1,833	15,567	2,167	.....	.....	.....	19,567	237,534
July	23,484	14,548	111,903	37,678	21,452	209,065	9,355	25,000	.....	.....	774	35,129	244,194	
August	25,290	16,323	123,226	21,613	7,194	193,646	.....	38,677	.....	.....	613	39,290	232,936	
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	6,333	1,667	.....	55,667	253,200	
October	20,161	16,839	138,452	27,710	7,096	200,258	.....	32,226	3,065	1,612	.....	36,903	237,161	
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	4,633	.....	.....	43,133	249,966	

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS (Revised)

(In barrels of 42 gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	19,028,228	20,978,320	20,060,311	3,319,325	2,791,922	1,807,061	2,429,375	3,134,000	73,548,5
	Daily average	613,814	676,720	647,107	107,075	90,061	58,292	78,367	101,097	2,372,5
February:	Month	18,038,459	19,294,426	19,678,396	3,079,887	2,571,575	1,734,207	2,230,887	3,166,000	69,794,8
	Daily average	622,016	665,324	678,565	106,203	88,675	59,800	76,927	109,172	2,406,6
March:	Month	19,113,324	20,162,524	21,542,865	3,379,031	2,687,948	1,866,106	2,401,911	3,522,000	74,680,7
	Daily average	616,720	650,404	694,931	109,001	86,708	60,197	77,481	113,613	2,409,0
April:	Month	18,280,729	19,096,920	21,876,913	3,412,260	2,472,600	1,912,187	2,370,810	3,231,000	72,653,4
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,7
May:	Month	19,321,866	19,443,355	21,220,046	3,367,809	2,843,847	1,926,026	2,525,042	3,619,000	74,276,9
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,396,0
June:	Month	19,164,244	18,482,981	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,0
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,1
July:	Month	19,754,458	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	74,800,7
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	2,413,0
August:	Month	19,444,839	20,840,804	22,239,131	3,147,068	2,711,787	1,939,264	2,561,840	3,556,000	76,590,7
	Daily average	627,255	672,284	720,448	101,518	87,477	64,170	82,640	114,709	2,470,6
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,229,000	75,998,2
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,2
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,822	3,612,000	79,760,9
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,573,5
November:	Month	19,907,526	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,370	3,348,000	75,770,0
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,525,6
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	79,407,3
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,5
	Total 12 months	231,982,597	247,500,851	255,354,357	38,150,878	32,137,934	22,862,564	29,120,084	40,886,000	897,995,2
	Daily average	633,832	676,232	697,690	104,237	87,809	62,466	79,563	111,710	2,453,5